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ABSTRACT

This document is comprised of volume 14 of the Harvard Education Letter, published bimonthly and addressing current issues in elementary and secondary education. Articles in the six issues of this volume include the following: (1) January-February--"Multi-Age Classrooms: An Age-Old Grouping Method Is Still Evolving" (Walser), "Teachers Wanted: Schools Look for Creative Solutions to Upcoming Teacher Shortage" (Walters), "Schools Should be Safe, But Are They?" (Posner); (2) March-April--"Teachers in the Driver's Seat" (Lewis), "Time and Learning" (Sadowski), "Small Schools Work Best for Disadvantaged Students" (Farber); (3) May-June--"The Bilingual Education Debate" (Walters), "Bilingual Education and California's 'English for the Children' Initiative," "Paying Attention to ADHD" (Lynn); (4) July-August--"Working Teenagers: Do After-School Jobs Hurt?" (Kelly), "Full-Service Schools Respond to Families' Needs" (Farber), "Discussing Student Work Gives Teachers New Perspective"; (5) September-October--"From Sputnik to TIMSS: Reforms in Science Education Make Headway Despite Setbacks" (Freundlich), "Latino Achievement Reexamined" (Walters); and (6) November-December--"Learning To Listen May Help Children Learn To Read" (Walser), "Programs Fostering 'Emotional Intelligence' Show Promise" (Sadowski), "Building Collaborative Relationships: Educational Research in Schools" (Rubinstein-Avila and Suarez-Orozco), "A Parent's Influence is Peerless" (Kagan). Regular features include editorial statements and summaries of recent educational research. (KB)

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The Harvard Education Letter

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Multi-age Classrooms: An Age-Old Grouping Method Is Still Evolving

Despite mounting challenges, the multi-age classroom continues to be an attractive option for educators

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By Nancy Walser

Seven years ago, when Connie Chene took over as principal of the Puesta Del Sol Elementary School in Rio Rancho, NM, she issued this challenge to her teachers: If they had any ideas about how to do things differently to benefit kids, all they had to do was talk to her.

Located just outside Albuquerque in one of the state's fastest growing cities, Puesta Del Sol had a not-so-progressive classroom arrangement. All special education students were taught outside the school in portable buildings; all regular education students were taught inside the main building. Chene was immediately besieged by proposals from regular and special education teachers who wanted to combine their students. Teachers knocked down walls between rooms, more proposals came in, and Chene now presides over a smorgasbord of classrooms: both single grades and mixed ages in both regular and inclusion classrooms, including one inclusion class that spans kindergarten through the 3rd grade.

> ***"Society is multi-age, families are multi-age, and we wanted the classrooms to reflect real life."***

"Teachers began to see the power of kids with different abilities and different points of view working together in the classroom," says Chene. "They began to buy into the idea that society is multi-age, families are multi-age, and we wanted the classrooms to reflect real life."

On the other side of the country, at the Graham and Parks Alternative School in Cambridge, MA, students have been combined in multi-age classrooms for 25 years. However, Graham and Parks is also home to the district's only Haitian-Creole transitional bilingual education program, and with bilingual Haitians now making up more than 30 percent of the school population, principal Len Solo is reassessing their system of combining two grades per classrooms in 1st through 8th grades. Especially in the higher grades, he contends, there are simply too many ability levels in each room for teachers to handle.

"You can have an eight- or nine-year spread in terms of levels," Solo says. "I've got a staff that kills themselves to meet kids' needs, and it's beginning to get really difficult to do that."

A Long History

Since the days of the one-room schoolhouse, multi-age grouping in this country has been buffeted by changing times and shifting priorities. Largely abandoned for single grades beginning in the mid-19th century, the practice was revived in the 1960s and 1970s with the growing interest in developmentally based education. Today

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Classroom Grouping Terms

Looping: Students stay with a teacher(s) for more than one year. A multi-age classroom is considered one form of looping.

Multi-age (or mixed-age): Students in two or three grade levels are mixed in one classroom based on the philosophy that this form of grouping improves learning and attitudes toward school. Multi-age grouping is practiced more often in elemenary schools than in secondary schools.

Multi-grade (also combination grades or split grades): Students from one or more grade levels are grouped due to low enrollments or uneven class sizes. Students in these different grade levels are usually taught separately although they are in the same classroom.

Multi-year: An umbrella term for any classroom where students stay with the same teacher(s) for more than one year. Includes multi-age classrooms and looping.

Non-graded (or ungraded): Students of different ages are mixed based on the mixed-age philosophy that emphasizes continuous progress by individuals rather than grade-level expectations. Since state education departments require reporting by grade level, however, this form of mixed-age classroom is more rare.

Single-grade: Students of roughly the same age are assigned to the same grade for one year. This is the most common form of grouping.

most multi-age classrooms mix two, or more rarely three, grade levels containing a minimum of four chronological ages, according to Jim Grant, executive director of the Society for Developmental Education of Peterborough, NH.

Supporters say the practice of mixing different ages in the same classroom still holds much promise, arguing that it improves learning by emphasizing project-based curricula, continuous progress (as opposed to an annual pass-fail system), cooperation, and the sharing of knowledge. In theory, teachers in multi-age classrooms focus on individuals rather than on grade-level expectations. They also have more time to address individual needs because children spend more than one year in their class.

Detractors focus on the difficulties of managing multi-age classrooms and some practitioners report a new threat to the viability of multi-age education: the emergence of tests tied to grade-specific curriculum frameworks, which adds to the difficulty of teaching more than one grade level at a time.

Types of Grouping

Multi-age classrooms have been used in a variety of ways for a variety of reasons. One type, multi-grade classrooms, are forced upon teachers as a way to manage low enrollments and shrinking budgets (see box). Because of this variety, simply counting the number of districts with mixed-age classrooms has proved illusive and made it difficult to judge their effectiveness.

When comparing achievement and other kinds of success in multi-age and single-grade classrooms, research is decidedly mixed. In a study published in 1995, Simon Veenman of the University of Nijmegen of Norway examined 56 studies, including 33 in the U.S., which compared standardized test results for single-grade classrooms with multi-grade and multi-age classrooms. While he concluded that multi-age classrooms "appear to be generally equivalent" to single-graded in terms of achievement, he found that tests measuring self-concept and attitudes toward school registered "a small positive effect for students in multi-age classes." Veenman excluded studies of non-graded classrooms—a more deliberate and rarer form of multi-age classroom that rejects all things labeled by grade—since non-grading is "a philosophy that permeates the entire school organization and program." In an attempt to look at only the effects of different grouping methods, he excluded studies in which teachers had received training in multi-grades or multi-ages.

The emergence of tests tied to grade-specific curricula adds to the difficulty of teaching multi-age classes.

In a 1992 study comparing non-graded with single-grade classrooms, however, Temple University professor Barbara Nelson Pavan reviewed 64 studies in the U.S. and Canada and found that the majority (58 percent) of non-graded classrooms performed better on achievement tests, as well as on tests for mental health and school attitude (52 percent). All seven studies that compared students who spent their entire elementary years in a non-graded school with single-graded counterparts found "superior performance by non-graded students." According to Pavan's definition, a non-graded school "does not use grade-level designations for students or classes" and progress is reported "in terms of tasks completed and the manner of learning, not by grades or rating systems."

Given the range of types of multi-age classrooms that exist, according to these studies, duplicating these positive results is a tricky business. In Kentucky, confusion over how to set up non-graded primary classrooms resulted in changes to the state's six-year-old education reform act mandating "multi-age/multi-ability" classrooms. Now school-based councils decide how primary-grade classrooms will be structured within general goals outlined by law. At least some of Kentucky's ele-

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mentary schools now use multi-age grouping for only a portion of the day, with basic skills and drills often reserved for single-age grouping, according to Pam Williams, a consultant for the Kentucky Department of Education.

Emerging Consensus

After more than 30 years of dedicated study, some areas of consensus have emerged about mixing ages within classrooms. No one argues the fact that multi-age classrooms are harder to teach and require more preparation and training. And multi-grade classrooms—the kind forced on teachers for budgetary purposes—are particularly beset by "common problems and concerns," according to Veenman. These include "lack of time for teaching the required content, a greater work load, lack of time for individual attention and remediation, lack of adequate classroom management skills, lack of adequate preparation during teacher training, inadequate materials, and parental concerns about the academic achievement of their children."

Conversely, schools that use multi-age classrooms successfully are marked by several common traits, according to Bruce Miller, a researcher with the Northwest Regional Educational Laboratory in Portland, OR, who has written extensively about multi-age education in rural America. In a 1996 review of five schools in the Northwest that have used multi-age classrooms for more than four years, Miller found these commonalties: dedicated teachers, supportive principals and parents, and solidarity and teamwork among the staff. He also identified five requirements for implementing multi-age classrooms: review the research before beginning, don't settle on a single model, avoid "bottom up or top-down" mandates, recognize that a major conceptual change is required in terms of attitudes toward teaching and children, and get prepared for "evolving long-term change" through "strategic, incremental" steps. "Too many educators are implementing multi-age classrooms and schools with insufficient forethought, planning, and participation of key stakeholders," he concludes.

Threat of Tests

But even supporters say the best multi-age classrooms are threatened by the trend toward grade-specific curriculum requirements and tests. "Multi-age is a philosophy that is truly wonderful for learning, and in a perfect world where you do not have curricular barriers, it is doable," says Char Forsten, who leads seminars around the country for the Society for Developmental Education. Forsten, who taught mixed ages in New Hampshire for 18 years, says she learned these difficulties first-hand. "The minute you were asked to teach them as 4th and 5th graders instead of the blend, you were going against the multi-age philosophy to address them as one group of learners."

Other teachers, however, have gotten around these barriers by outlining district expectations for all the grade levels in their classroom and concentrating on the common areas; by teaching one curriculum one year and another the next; or by using sufficiently broad themes to cover all the bases. Looping—which groups a single or mixed-age class with the same teacher for more than one year—can also help bring teachers up to speed on combining curriculums, according to Forsten. "If I'd been a 3rd-grade teacher for 10 years before I took on a 3/4 class, I'd take the 3rd graders up to 4th grade so I would know what the 4th-grade curriculum is like before I taught both grades together in the same classroom," she says

No one disputes the fact that multi-age classrooms are harder to teach and require more preparation and training.

It's exactly this kind of flexibility that practitioners point to as one of the most useful aspects of multi-aging: as a tool that can be used by teachers who want to use it and by schools that want to offer it to interested parents.

In Rio Rancho, principal Connie Chene has not formally compared test results of children before and after the introduction of inclusion and multi-age classrooms. But teachers have noticed a dramatic increase in writing skills and improvement on tests in areas they have identified as important. In a 1997 survey of all 200 parents whose children were in multi-age classrooms, all but two said they wanted their children to stay in the classrooms with mixed ages. Results like these prove the concept is working, says Chene. "There are many parents who still don't like it, and I make sure I have enough single-grade classrooms to accommodate them," she says. But even these classes have banded together to do mixed-age activities once a week—an arrangement that also gives one teacher some extra planning time each week, she says. "There's no one way of doing things around here," she emphasizes.

At Graham and Parks, principal Len Solo says he will be asking his school community to look into looping by single grades as a substitute for some or all multi-age classrooms to reap the benefits of having children stay with one teacher for more than one year, while at the same time reducing teacher work load and the need for tutoring after school and at home. "The measurable benefit [of multi-aging] comes from having a child for two years," he says. "The kids might have a good first year, but they have a much better second year; the achievement goes up by more than a year."

Despite the changes he is contemplating at his school, Solo still considers himself a staunch advocate of multi-age classrooms. "I just see so many benefits," he says. "They really contribute to the sense of community that we try to build here and we'll use them as long as we can."

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Teachers Wanted: Schools Look for Creative Solutions to Upcoming Teacher Shortage

By Laurel Shaper Walters

Perennial predictions of impending teacher shortages have made researchers look like the boy who cried wolf. Despite projections that widespread teacher shortages would hit in the 1990s, most school districts face tight markets in only certain subject areas. Widespread shortages during this decade have so far been limited to specialized fields such as science, special education, math, and bilingual education, according to a 1995-96 University of Michigan survey of education administrators in 294 public school districts. Nationwide shortages, however, appear to have only been delayed: inevitable retirements and rising enrollments from children of baby-boomers are forcing districts to come up with a variety of solutions to make hiring easier in the next decade.

While some urban and rural school administrators are struggling to fill a variety of positions, rising teacher salaries and the economic anxieties caused by a recession have kept many retirement-age teachers in the classroom longer than expected, which has delayed across-the-board teacher shortages.

Recent political and demographic changes are already creating acute shortages for many types of teachers in states including California, Texas, Nevada, and Florida. Due to an influx of immigrants and booming birth rates, districts in these states are finding it more and more difficult to fill positions with qualified candidates, according to studies by the American Association for Employment in Education in Evanston, IL. In California, a 1996 state law mandating class-size reductions will require the state to hire 15,000 to 17,000 teachers annually for the next several years, for a total of 260,000 new hires in the next decade, according to the California Commission on Teacher Credentialing. If more states take California's lead and pass laws reducing class size, it will make the national teacher shortage even more serious, says David Haselkorn, president of Recruiting New Teachers, a nonprofit group in Belmont, MA. "That's just one of the many unprojectable issues of teacher supply and demand," he adds.

Serious Shortages to Come

As the demographic double whammy of accelerating retirements and expanding enrollments hits the nation in the next decade, demographers say school administrators better brace themselves for serious nationwide teacher shortages.

For the past two years, public-school enrollment has exceeded the baby-boom records. Demographers predict the peak will come by 2006 when they expect U.S. schools to enroll more than 54 million children, a dramatic increase since the mid-eighties when enrollments were around 38 million. To keep up, we'll need two million new elementary and secondary teachers in the next decade, according to last fall's back-to-school report on demographic trends from the U.S. Department of Education. Or, as Patricia A. Ashton, a professor of educational psychology at the University of Florida, wrote in 1996: "Virtually the entire teaching force will retire within about 15 years."

What we're talking about is a shortage of people who are well-educated and have the skills to teach.

Early signs of a tightening teacher labor market are showing up in the large number of educators who are teaching outside their fields of study. More than one-third of teachers in English, foreign languages, mathematics, or social studies neither majored nor minored in their main assignment field as undergraduates, according to a 1993-94 study of public-school staff conducted by the U.S. Department of Education.

While the impending shortage presents huge logistical difficulties, especially for larger urban districts that have the hardest time attracting qualified candidates, some experts view the situation as a golden opportunity to diversify and upgrade the quality of the nation's teaching force. "You have to be careful when you use the word shortage," says Richard Murnane, a Harvard economist and author of *Who Will Teach*, a 1991 book examining the labor market for teachers. "It's not a question of bodies; it's a question of quality. What we're talking about is a shortage of people who are well-educated and have the skills to teach."

In fact, wealthy suburban districts may never feel the crunch. They always have a surplus of applicants for most positions. Schools serving higher concentrations of poor students report the greatest difficulty hiring teachers in fields where there is a shortage. Since school administrators cannot simply leave classrooms unattended, they often make concessions in filling vacancies. In some cases, administrators hire underqualified teachers who then work toward full teaching credentials. In other cases, educators trained in one field are assigned to teach another subject. This poses the most troublesome questions for policymakers, since a shortage of qualified teachers means the nation's most needy students are put at even more risk of sub-standard teaching.

Responding to the Challenge

Such problems are gaining more attention than ever, however. This past July, President Clinton proposed a $350 million program to train about 35,000 new teachers who agree to work for at least three years in poor urban and rural schools. The Clinton administration and three members of Congress have proposed teacher-training and recruitment bills. Several states, including North Carolina and Arkansas, recently passed major legislation revamping and increasing support for teacher-education programs.

"I've been talking about the issue of improving teaching for 20 years, and this is really the first time I've seen this

kind of activity," says Linda Darling-Hammond, a professor at Teachers College, Columbia University, and a leading expert on teacher preparation.

Foundation funding for teacher recruitment and retention programs is also at an all-time high. Since 1989, the DeWitt Wallace-Reader's Digest Fund has invested $40 million in model training programs to increase and diversify the supply of qualified educators. Through the foundation's Pathway to Teaching Careers Program, 42 colleges and universities are using grant money for scholarships that help returned Peace Corps volunteers, career changers, and teachers' aides to become certified teachers. The Ford Foundation has spent another $25 million providing support services like child care and tutoring for Native American, African American, and Latino teacher trainees.

A Question of Quality

Quality over quantity of teachers was the focus of the most recent independent examination into the state of the nation's teaching force by the National Commission on Teaching and America's Future. In its influential 1996 report, "What Matters Most: Teaching for America's Future," the bipartisan group of 26 public officials, educators, and business leaders argued for the need to create a high-quality system of teacher development and accountability while challenging districts to staff every classroom with a fully qualified teacher by 2006—the same year that projected enrollments reach their peak nationwide.

"What we have are major problems of distribution and quality," says Darling-Hammond, who serves as the commission's executive director. Too many people are preparing to be elementary and English teachers while not enough are training in such areas as math, science, and special education, she argues. And while the largest numbers of teachers are being trained in the Midwest at the big land-grant universities, more teaching jobs are on the coasts, in California, Texas, New York, and Florida. Moving states toward a common licensing system would more evenly distribute teachers, says Darling-Hammond. As it stands today, teachers who are licensed in one state often cannot teach in another.

Creative Solutions

As the labor market for teachers heats up, personnel directors are thinking more creatively about how to build their future teaching ranks. Alternative certification programs, initially considered a panacea for predicted shortages, are receiving more scrutiny at the same time interest in other kinds of training programs is growing.

Since New Jersey created the first alternative certification program for teachers in 1983, 41 more states have set up alternative or emergency licensing routes. An estimated 50,000 people have been certified through these programs since 1990, according to the National Center for Education Information, a private research group in Washington, DC. Ranging from six weeks to two years or more, alternative certification programs are designed to supplement the existing pool of teachers by bringing in older, more experienced candidates who have at least a bachelor's degree and may be professionals switching from another field.

Too many people are preparing to be English teachers, while not enough are training in math, science, and special education.

Yet the early evidence suggests that few alternatively certified teachers are being attracted from other professions. More than 75 percent of people entering teaching by an alternative path came either straight from college or from another job in the education field, says Jianpeng Shen, an assistant professor at Western Michigan University in Kalamazoo, who surveyed 15,000 teachers for a 1996 study on alternative certification. Research also suggests that teachers trained through alternative certification programs may be much more likely to leave the profession than those trained in traditional programs. Some studies also suggest that student achievement suffers under alternatively certified teachers. Research in Dallas, where many teachers were hired with alternative certification, shows these teachers' performance to be much more uneven than that of traditionally trained teachers. The effects of this showed up most strongly on students' achievement in the language arts, where student performance gains were significantly lower.

Murnane, however, argues that traditional education programs are "deadening" and that alternative certification is necessary to attract college graduates to a field that does not tend to attract the best and brightest. "The challenge is to attract talented college graduates, give them in-depth pre-service education and significant support during their first years on the job," he says. He also favors performance-based licensing where teachers would have to demonstrate their competence.

Rather than limiting themselves to alternative certification programs, many school administrators are creating partnerships with local colleges and establishing mid-career programs within traditional schools of education. These programs target professionals who want to become teachers. A new survey by Recruiting New Teachers of Belmont, MA, found more than 300 mid-career transition programs across the country; 46 percent were created since 1990.

Programs that help paraprofessionals—or teaching aides—become fully licensed teachers also are gaining momentum. More than 9,000 people are enrolled in 150 such programs nationwide. With a 77 percent minority enrollment, these programs are helping bring more African American and Latino teachers into U.S. classrooms. Early research suggests that teachers' aides who become fully certified through these programs are performing well above the average, says Beatriz Clewell, a researcher at the Urban Institute who is conducting a study for the DeWitt Wallace-Reader's Digest Fund. The fund-supported programs also retain 90 percent of their students while traditional teacher-education programs lose almost a third by graduation.

Other districts are looking to recruit talent from within their own communities. In Rochester, NY, nearly 100 high school students participate in a two-

COMING SOON

Why Is Small Better When It Comes to School Size?

Techniques for Assessing Student Work

Does More Time Mean More Learning?

year program that exposes them to teaching, counsels students on how to move into a career in education, and encourages teaching careers at every opportunity. The school district also works with local colleges to help students receive scholarships. Minneapolis schools, in addition to training paraprofessionals, have a "residency program" that puts several student teachers from local colleges into high schools for a year at 80 percent of a full teacher's salary.

But for personnel directors already feeling the hiring crunch, aggressive recruiting goes on even as they pursue these long-term options. In Los Angeles, the district expects an influx of 50,000 new students in the next five years and already hires 4,500 teachers a year. Long-term needs are being addressed through programs that help paraprofessionals work toward teacher certification and in high schools that focus on early teacher-preparation opportunities. Short-term approaches include hiring college graduates to work in shortage areas for one year through the Teach for America program. An alternative certification program provides a two-year pipeline for candidates interested in working in shortage fields such as special education. The district's most controversial strategy is paying a bonus of up to $5,000 a year for bilingual teachers, who are sorely needed and difficult to find.

"You have to take a multifaceted approach to recruitment," says Michael Acosta, the administrator of employment in the Los Angeles Unified School District. "It's like playing golf. You have to use a variety of clubs to get to the point where you need to be. We've utilized every club in the bag."

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Schools Should Be Safe, But Are They?

Research tells us a lot about common school injuries, but schools lack systems for preventing them

By Marc Posner

On June 18, 1993, Charles Richey was coaching his son's Little League team in Ross, a small town near Pittsburgh. His attention was diverted by a toppling slide at the adjacent elementary school. Running to the playground, Richey was horrified to find that the slide had landed on his 9-year-old daughter, Jillian. She died of internal bleeding an hour-and-a-half later.

Investigation revealed that the slide's leg supports had rusted through. A teacher had warned the principal and a school board member about a broken support on the slide two months before it fell, but no repairs were made.

Jillian Richey's death was not an isolated incident. Every year, children are hospitalized, disabled, and even killed by injuries occurring at school or during school-sponsored activities. Two million children are treated by school nurses, hospitals, or the family physician every year for such injuries; more than 700,000 children require emergency room treatment. Research has taught us much about the most common school injuries. However, most school districts have not taken advantage of this research in ways that could significantly reduce the number of injuries in schools.

School Dangers

Government researchers and academics studying injury prevention have identified four areas in which students are most likely to be seriously injured, as well as some concrete steps that can help prevent such injuries. Elementary school children, for example, are at greatest danger on the playground. Falls from slides and climbing equipment account for over 75 percent of serious and fatal playground injuries. Children colliding with equipment, or each other, also cause large numbers of injuries. Collisions with moving swings are especially dangerous. Children are also in danger of being strangled if their heads become lodged between the bars or stairs of climbers or the openings of "adventure" equipment, or when sweatshirt drawstrings become tangled in slides or merry-go-rounds.

Elementary school children also face

dangers on the way to and from school. The contemporary school bus protects its passengers so well that neither the National Transportation Safety Board or the National Research Council recommends seat belts in school buses. In fact, the most dangerous part of a school bus journey is the few minutes before and after the ride, when students are at risk of being struck by a motor vehicle. Sixty percent of the students killed in such incidents are struck by the bus. Most of these children are between the ages of five and seven; their small size makes it difficult for drivers to see them.

For older students, sports and physical education classes pose the greatest injury risks. Over 2.3 million junior and senior high school athletes are injured annually, including 35,000 who are hospitalized and 600,000 who are treated by a doctor. The most dangerous athletic activities are gymnastics and contact sports, but no sport is completely risk-free. Students have been permanently disabled after sliding during baseball games. Cheerleading has become a competitive sport in which participants have been paralyzed after landing on hardwood gymnasium floors during stunts. Students are also injured during athletic practice, especially when using areas not designed for athletics, such as the common practice of running laps in hallways during inclement weather. Many serious athletic injuries are actually reinjuries occurring when students resume physical activity before an injury has completely healed. The most dramatic of such reinjuries are cases of "second impact syndrome," in which students with unhealed concussions suffer brain damage or die as a result of a blow to the head.

Off the playing fields and sports arenas, older students are also at risk in science labs and vocational shops. Fingers and hands have been amputated by power saws and wood jointers. Students have been burned by explosions in chemistry laboratories and poisoned by toxic materials in biology and art class.

Prevention Methods

Thanks to researchers and the efforts of a number of national organizations, information on simple methods for preventing injuries is now widely available (see box, p. 8). Resurfacing a playground with the proper amount of wood mulch, rather than dirt, for example, can make the difference between a bump on the head and a concussion. Placing equipment far enough from other equipment or paths can prevent collisions. Inspecting playgrounds several times a year for wear and tear can also lessen chances of injury. Technical innovations for buses like larger rearview mirrors, crossing arms that swing out from the front bumper, and electronic motion detectors can help bus drivers cope with blind spots that make it hard to see children and other pedestrians. A bus monitor can act as a second pair of eyes for the driver and enforce discipline when the bus is in motion. For safer loading, school bus loading zones can be separated from other traffic, pedestrian, and bicycle entrances to the campus. Painting an outline of a bus at bus stops combined with a short safety lesson can mean safer boarding behavior by elementary school children.

Injuries are just as much an indicator of health as vaccination status, cases of the flu, or outbreaks of foodborne illness.

Advice is available on preventing sports injuries. Pre-participation physicals, pre-activity warm-up and stretching, use of appropriate protective gear, strict enforcement of rules, and rigorous adherence of return-to-participation guidelines are recommended procedures. Safety in science and vocational programs includes instruction in safe practices at the beginning of each semester or whenever a new activity or technology is introduced. Other recommendations include periodic safety audits of labs, art rooms, and voc-ed workshops, with special attention paid to protective guards on power equipment and the presence and maintenance of protective and emergency equipment, first aid kits, and fire extinguishers.

A System for Safety

Most of what we know about school injuries comes from research and from liability suits. Some districts have begun assessing their own safety records to become more proactive in preventing injuries and reducing their own legal risks. In Washington state, the School Injury Surveillance Project has revealed that 85,000, or a full 17 percent of students in kindergarten through 5th grade, are injured during school hours each year. But those numbers could be higher, since the most diligent school districts often reported much higher injury rates, according to Richard Ellis, who directs the project for the Washington State Department of Health. Ellis believes local districts should be doing a better job tracking school injuries nationwide. "Injuries are just as much an indicator of health as vaccination status, cases of the flu, or outbreaks of foodborne illness," he says. "All of these —except injuries—are tracked by most schools." In addition to Ellis' project, school injury data programs have begun in Arizona, Utah, and Virginia.

There is resistance, however, to tracking school injuries more thoroughly. The two most common objections, according to researchers, are burdening staff with more paperwork and creating injury records that could be used against the schools in lawsuits.

At the same time, some local and national groups are emphasizing local record-keeping as a first and necessary step toward a comprehensive approach

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Resources on School Safety

General

Injuries in the School Environment: A Resource Guide. Children's Safety Network, Education Development Center, Inc., 55 Chapel Street, Newton, MA 02158-1060; 617-969-7101, ext. 2207; Website: www.edc.org/HHD/csn/schooinj/schoopack.html.

Getting to and from School Safely

Walk-Ride-Walk: Getting to School Safely. National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60141-3201; 800-621-7619.

Wary Walker Pedestrian Safety Curriculum. Harborview Injury Prevention and Research Center, Box 359960, 325 Ninth Avenue, Seattle, WA 98104-2499; 206-521-1520.

Playground Safety

Handbook for Public Playground Safety. U.S. Consumer Product Safety Commission, Washington, DC 20207; 800-638-2772; Website: www.cpsc.gov/.

ASTM/CPSC Playground Audit Guide. Playworld Systems, 315 Cherry Street, PO Box 505, New Berlin, PA 17855; 800-233-8404.

Sports Injuries

Sports Medicine: Health Care for Young Athletes (2nd ed.). American Academy of Pediatrics Publications Department, PO Box 927, Elk Grove, IL 60009-0927; 800-433-9016.

Minimizing the Risk of Injury in High School Athletics. National Athletic Trainers' Association, 2952 Stemmons Freeway, Dallas TX 75247; 214-637-6282.

Science Laboratories

Safety in the Academic Chemistry Laboratories. American Chemical Society, PO Box 57136, Washington, DC 20037-0136; 800-ACS-9919.

Safety in the Elementary Science Classroom. National Science Teachers Association, 1840 Wilson Blvd., Arlington, VA 22201-3000; 800-722-NSTA.

similar to that used by public health officials to successfully reduce occupational and traffic injuries in the past. "Preventing injuries in schools is a matter of looking at the patterns of injuries that exist in the school and then at the strategies that have been used in other places to prevent these types of injuries," says Elaine Frank, director of the New Hampshire Safe Playground Project at Dartmouth College Injury Prevention Center. "All they need to do is to apply methods already shown to prevent injuries in the school environment."

In 1996, a School Injury Work Group at the California Conference on Childhood Injuries recommended that the state's education code be amended to require school district safety boards (including parents) to develop, implement, and evaluate school safety programs and violence prevention programs. The American School Health Association (ASHA) National Taskforce on Injury Prevention has also recommended that "a uniform process for reporting injuries and health problems in the school environment should be in place and analyzed for the purpose of monitoring risk factors, trends, and patterns, and suggesting possible preventative measures."

According to Jan Ozias, a member of the ASHA task force, school injury prevention is best overseen by a school-based committee composed of staff having responsibility for areas where serious injuries are most likely to occur, as well as those responsible for student health and safety. Committee members would include an administrator, the school nurse, the district's attorney, the risk manager, and representatives from the science, vocational education, physical education, and sports programs, as well as staff from the building and grounds, security, transportation, and counseling departments. Parents and student members can also bring a fresh perspective to the committee, says Ozias. She adds that another important duty of the committee is to create and periodically review an emergency preparedness plan.

New Plan for Emergencies

Since no school is completely "injury proof," one of the most serious mistakes a school can make is not to have an established procedure for responding to emergencies. Students have died while waiting for a principal to be called to the scene to allow a call to 911 to be made. Emergency medical technicians have watched students with broken limbs suffer while waiting for parents to be called for permission to transport the child to an emergency room. "Planning is critical to effectively responding to an emergency," says Elaine Brainerd, a consultant who developed the School Nurse Emergency Medical Services for Children Program at the University of Connecticut Health Center. "We've done fire drills for years in schools," she says. "We also need to prepare for other types of emergencies."

Experts recommend that emergency plans be expanded beyond procedures dealing with suicide attempts or violence—a traditional focus—to include guidelines detailing how to proceed in the event of any serious injury. Other recommendations include encouraging parents to sign release forms allowing the school to take children to the emergency room when necessary, equipping school buildings with basic first aid equipment and high schools with portable defibrillators, and training teachers, coaches, and other personnel in basic first aid, CPR, and the Heimlich maneuver. A list of trained personnel could be available in every room so they could be summoned while waiting for professional help to arrive.

Time to Act

Since school districts and parents are accepting the notion that injuries resulting from violence are preventable, Jan Ozias believes it is not a great leap to apply this same preventive model to unintentional injuries. Richard Ellis concurs. "Injury prevention should be made part of a school culture," he says. Every time a student is seriously injured or killed while in a school's care, their parents, the press, and administrators and teachers ask if there was some way the tragedy could have been avoided. The implementation of a school injury prevention program can help avoid having to face this question.

Marc Posner is a Senior Research Associate at Education Development Center, Inc., in Newton, MA. He is currently writing a book about preventing school injuries.

The Harvard Education Letter

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Teachers in the Driver's Seat

Collaborative assessment proves a positive way to reform schools and improve teaching

By Anne C. Lewis

When teachers in the Monaca school district near Pittsburgh were first presented with new content standards in 1995-96, "they did what every good teacher would do—put them in a drawer," says Kathy Dabrowski, who is principal of three small neighborhood elementary schools in the 880-student district. But then Dabrowski countered with her own requirement: teachers had to turn in student work along with weekly lesson plans based on the new standards. Dabrowski followed up by discussing these plans and student work with the teachers, asking such questions as, "What are you doing here to get this work to a higher level?"

Monaca teachers from each grade level now spend half a day every month looking at student work together. Staff development experts from the Institute for Learning at the University of Pittsburgh's Learning Research and Development Center (LRDC) help teachers with these discussions. Also, teacher representatives from each of the grade levels in the district meet with parents weekly for a few hours after school to look at how student work is measuring up to standards.

"What has happened here is tremendous," says Dabrowski. "If you go into any group of teachers and ask, 'could you be doing your job better?' you will lose most of them immediately. But if you ask them to look at student work and talk about how it could be better, then teachers become really student focused."

If you ask teachers to look at student work and talk about it, then they become really student focused.

Persuading teachers to discuss their own students' work and compare it with that of their colleagues' students is a delicate process that would have been a rarity only a few years ago. Yet today there are thousands of teachers using student work for a variety of purposes that go far beyond the practice of assembling portfolios. Three things have only recently made this possible: a political and policy climate that wants proof that students are learning to higher standards; reform efforts that now target schools as well as districts and that encourage teachers to share responsibility for student success; and, finally, the emergence of a research base that is giving teachers better clues as to how to move to higher levels of learning.

Beyond the Portfolio

Teachers have always examined student work, but almost always alone and for the purpose of grading an individual's work. The idea of sharing student work, however, has become more common with the growing use of portfolios as an alternative or supplement to standardized and other formal tests. A decade ago, the practice of focusing on student work was begun by a small number of academics as a way of getting teachers in touch with how students learn. The archival project of student work collected by the Prospect School in Vermont and Project Zero, which was developed by Howard Gardner and others at the Harvard Graduate School of Education, were primary influences.

In 1994, the federal Title I program

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Collaborative Assessment:
Looking at Learning Through Careful Examination of Student Work

The following protocol was developed by Steve Seidel and colleagues at Harvard Project Zero. This "Collaborative Assessment Conference" brings teachers together to talk about student work. The protocol is based on the notion that students are often working on problems or exploring interests beyond the parameters of a given assignment. Project Zero is an education research organization based at Harvard Graduate School of Education.

(This process should take approximately 45 to 60 minutes.)

The purpose of this practice is to provide opportunities for teachers to examine and discuss pieces of student work in a nonjudgmental, structured conversation. It is designed to facilitate discussion in small groups. Through these conversations, participants can learn from the various perspectives and expertise of their colleagues, raise questions about the student and his/her work, see that student work is a reflection of the child and the learning environment, and use this opportunity to reflect on ways to improve learning environments for groups of children as well as the individual child.

1. **Getting started**. The group chooses a facilitator to guide participants through each phase of the conference. The presenting teacher shares copies of the selected work, without making comments about the work or the assignment.

2. **Describing the work**. The group describes any aspect of the work they notice. They do not make judgments about the quality of the work or their personal preferences.

3. **Raising questions**. The group asks questions about the child, the assignment, the curriculum, or any other area. The presenting teacher takes notes but does not respond.

4. **Speculating about what the student is working on**. The group "guesses" about what the child was working on when he/she created the piece. This could include ways the student was trying to fulfill the assignment, skills the child was trying to master, questions the child was trying to answer, or ideas he/she was trying to express.

5. **The "presenting teacher" speaks**. The presenting teacher now adds her perspective on each of the previous phases of the conference. She provides her own perspective on the students' work and responds to any questions or issues raised by the group.

6. **Implications for teaching and learning**. Everyone is invited to share any thoughts that have been stimulated by the examination of the student work. These could include thoughts about their own teaching, student learning, or ways to support a particular child in reaching his/her goals.

7. **Final reflection**. At this time, participants have an opportunity to reflect on the process of their own thinking during the conference.

Adapted with permission from Harvard Project Zero.

began requiring that disadvantaged students receiving Title I services be held to the same standards as all other students. Since then, every state has developed new standards setting forth what students should accomplish. In addition, many districts are developing standards and assessment systems on their own. No matter what type of standards are adopted, however, student work has become a tool for making sure those expectations get translated into the classroom. Since few teachers are actually involved in developing standards, the rest "are not going to learn this stuff by reading books of standards," says Katherine Nolan, a consultant who helped write the New Standards, a comprehensive set of performance standards for five subject areas. These standards have so far been adopted by 25 states and 50 districts, including Monaca. Only when teachers come together to discuss standards and what high-quality work looks like can that knowledge get out of teachers' heads and into discussions with colleagues, Nolan says.

While the standards movement has fueled interest in looking at student work, the process continues to be used for a variety of purposes: for scoring and holding schools responsible for student performance; for writing standards and helping teachers understand them; or simply for helping teachers think about their teaching and learn more about their students. For example, student work was used as a tool by the LDRC and the National Center on Education and the Economy in Washington, DC, to formulate proficiency exams based on the New Standards. In Kentucky, professional development activities centered on student work are helping teachers understand the differences among levels on the state's assessment tests (novice, apprentice, proficient, and advanced). Other reform organizations are using student work in schools they consult with to upgrade teaching, including the Coalition of Essential Schools and the Education Trust's K-16 Compact. Project Zero holds open, informal discussions of student work using the "collaborative assessment conference" every month. The meetings draw 30-40 teachers, administrators, and other interested educators from New England who come to engage in thoughtful conversations about teaching and learning through looking at student work.

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Early Findings

While consistent links to higher achievement are only anecdotal at this stage, collaborative assessment of student work is showing some positive effects, especially in the area of professional development. Researchers who studied the reactions of 250 teachers who participated in New York State's effort to develop performance assessments through scoring student work decided the exercise did provide a variety of learning experiences for teachers. "Looking closely at student work in collaboration with colleagues helped teachers learn about standards, their disciplines, their students, and teaching," reported Beverly Falk and Suzanna Ort of Teachers College at Columbia University.

Lauren Resnick, the director of Pittsburgh's Learning Research and Development Center, told those attending the 1997 assessment conference of the Center for Research on Evaluation, Standards and Student Testing that when professional development centered on discussions of standards and student work, teachers of low-performing students in districts using the New Standards were able to "move these kids off the bottom."

How to Do It

Though the phenomenon of analyzing student work to promote change in classroom practice is spreading quickly, it's still an elusive idea. No commercial entity has yet boxed the process into an easy, over-the-counter set of directions. No one proponent or strategy yet dominates either, although two approaches have emerged as the most common.

The first approach—illustrated by "Standards-Based Professional Development: Getting Standards into the Classroom" developed by the Education Trust (see box below)—assumes that standards are in place, and the task is to make sure student work reflects them. The other approach—exemplified by the "Collaborative Assessment Conference" developed by Project Zero (see box p. 2)—seeks to emphasize what teachers can learn by examining student work before it's judged. According to Steve Seidel, a research associate at Project Zero, such discussions can lead teachers to look beyond their assignments and toward recognizing students' creativity whether or not it is directly related to an assignment.

Despite the philosophical difference between these two approaches, they share some commonalties when it comes to the actual process of looking at student work. Often a trained facilitator leads a group of teachers through a step-by-step format, usually called a "protocol." Discussions may involve scoring work according to a specifically defined set of rubrics (descriptions that define different levels of quality from worst to best). But discussions can also focus on the quality of the assignments themselves. Much of the professional development now given by the Education Trust, for example, is on designing good assignments, often beginning with teachers doing their assignments themselves. Essentially, contends Ruth Mitchell, an assessment expert who works with the Education Trust, examining student work "is a strategy to look at teachers' work." Students can do no better than the assignments they are given, she contends, and if a teacher's assignment is divorced from standards, it becomes a "mystical experience" for students.

Crucial Ingredients

For many educators and schools, the hardest part may be getting started. Most experts with experience in collaborative assessment say it takes a high level of trust among staff. In the "Tuning Protocol" developed by the Coalition of Essential Schools, for example, discussions are carefully designed to keep the conversations about student work focused and away from personal criticisms. Its structure gives equal attention to feedback that is "warm" (supportive) and "cool" (more distanced). To break the ice, Katherine Nolan brings her own personal collection of student work to discussions. "If you use work too close to teachers at first, they will shut down. You have to be neutral," she says. Once teachers begin to share ideas, they can move to bring-

Standards-Based Professional Development:
Getting Standards into the Classroom

This tool was developed by Education Trust staff, with funding from the Office of Educational Research and Improvement. It is meant to be used by teams of teachers who work together to revise their assignments to meet standards. Its guidelines stress the importance of keeping standards in mind when choosing or adapting an assignment. The Education Trust is a nonprofit organization based in Washington, DC, that promotes educational success for all students from kindergarten through college.

(This process should take approximately 90 to 120 minutes.)

The following model is for teachers who are in a process of aligning classroom work with standards. Although it includes designing a scoring guide, the model is not primarily concerned with giving numbers to student work. It uses scoring as a tool to focus attention on the quality of classroom assignments and their direct connection with standards. If carefully followed through these steps, the model will result in rigorous assignments and scoring guides that will enable students to recognize and reach for high standards.

1. We all complete the assignment.
2. We identify the standards that apply to this assignment.
3. We generate a rough scoring guide from the standards and the assignment.
4. We score the student work, using the guide.
5. We ask: Will this work meet the standards? If not, what are we going to do about it?
6. What action can we plan at the classroom, school, district, and state levels so that all students meet the standards on assignments like this?

Reprinted with permission from the Education Trust.

ing work from their own classroom. She pushes them to ask, "Can our kids do any better than this?" and helps them build exemplars of student work from across their district.

As Nolan's example shows, another crucial ingredient to all models of collaborative assessment is the presence of an objective third party. Most schools that are trying to focus on student work rely on outside experts and/or outside funding to help them develop teachers' capacity to analyze the standards in student work and change their assignments and practices. Seidel's effort to develop conversations based on student work in Massachusetts began with consultants who spent 15-20 days a year in a school—a model he says is too expensive. The project is now working with "district coaches," usually staff members who serve as resources for teachers.

Even if the expertise, time, and trust needed to stimulate group conversations around student work exist, there still is the problem of whether teachers are able to understand what the process can teach them. Researchers who studied the three-year effort to use teachers to write new standards for the North Philadelphia effort of the Education Trust found that the process "was frustrating to those without a strong background of content knowledge and a wealth of teaching techniques."

Similarly, when the Philadelphia district sought to help teachers develop units of study based on standards, school officials learned how much teachers lacked theoretical knowledge about teaching and learning. So for 1997-98, teachers were given curriculum frameworks based on the district's standards, and summer and school-year workshops are being held to help teachers integrate standards in their disciplines, one by one, using student work as the guide. It will take four years to cover all the standards, according to Nolan, who is working with the district.

Such barriers will have to be overcome if standards-based reform is to take hold, according to Lauren Resnick. Raising standards will become the personal goal of teachers and students, she says, "only if a concerted effort is made to engage teachers and students in a massive and continuing conversation about what students should learn, what kinds of work they should do, and how well they should be expected to do it."

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Anne C. Lewis is an education policy writer in the Washington, DC, area. She has been a national columnist for Phi Delta Kappan for 15 years.

Time and Learning

As schools and states tinker with time, other factors determine if it makes any difference

By Michael Sadowski

More "structured learning." Longer school days. Block scheduling. Year-round schools. The list of well-intentioned school reforms and reform proposals targeting the use of time goes on and on. Four years ago this April, the U.S. Department of Education published *Prisoners of Time*, a report that called for radical rethinking of the time/schooling formula. Striking a somewhat alarmist tone, its authors warned that "American students must have more time for learning. The six-hour, 180-day school year should be relegated to museums, an exhibit from our education past." U.S. students spend far less time on core subjects than students in France, Germany, and Japan, argued the authors, warning that the use of time in U.S. schools is "a recipe for a kind of slow-motion social suicide."

But does giving students more time to learn necessarily mean that they will learn more? Does changing the school day or year change learning in any meaningful way? Research and experience point to a complex set of answers affected by a host of other variables.

Different Kinds of Time

In a review of more than 130 studies published in 1997 by the Brookings Institution, Herbert J. Walberg, Research Professor of Education and Sociology at the University of Illinois-Chicago, finds what he calls a "highly consistent" relationship between increased school time and better achievement. In 97 percent of these studies, there was a positive relationship between time and learning. "This is one of the most consistent of all relationships in education research, comparable to that of socio-economic status and academic achievement," Walberg says.

While Walberg calls more school time for students "an obvious and long-standing implication" of his findings, however, he makes some strong qualifications. First, he admits that the degree of the relationship between time and learning in many of the studies he

reviewed is relatively small. Second, he distinguishes between three different kinds of time students can spend in school and notes that only one is likely to make a significant difference by itself, suggesting that merely adding time to the school schedule may not result in more learning.

For time to be productive, Walberg argues, it must be spent in ways that are suitable to each individual learner. He goes on to differentiate between several types of time: "allocated time," like that spent in class; "engaged time," spent in class activities such as performing a laboratory project or taking notes on a lecture; and "productive time" in which a student learns new things. Engaged and allocated time can be wasted time from the individual learner's perspective, Walberg points out, if no account is taken of his or her previous knowledge base, learning needs, and other variables: "It's wasteful educational policy to teach some kids things they already know and other kids things they aren't yet capable of learning."

Time changes that don't address students' needs can reinforce inequalities.

A third qualification Walberg makes concerns other influences such as home environment, television viewing, peer groups, and other things that can have an impact on learning. These "educational productivity factors" must be taken into account along with the amount of learning time built into a schedule, he says.

For these reasons, Walberg says, across-the-board time changes that don't also address students' individual needs and circumstances can reinforce inequalities: those who are already advantaged educationally tend to benefit the most from any kind of school reform that does not account for individual differences.

Other research reviews underscore the limitations of defining learning time too broadly. Synthesizing recent studies (including Walberg's) for the Educational Resource and Information Clearinghouse (ERIC), Thomas I. Ellis writes in a 1997 *ERIC Digest*, ". . . the relationship between time and learning is complex and problematic. First, a distinction must be made between time allocated for instruction, time engaged in instructional activities, and time spent successfully completing instructional activities. Only the last of these has been found to have a direct correlation with achievement."

"Structured Time" in Massachusetts

Despite its limitations, time restructuring remains a linchpin of many education reform initiatives. In Massachusetts, for example, new statewide "time and learning" requirements were phased in over the past three years. Massachusetts elementary schools have long been required to provide 900 hours a year of instruction (990 for secondary schools), and while the numbers haven't been changed, they must now consist of "structured time" in a defined range of core subject areas: mathematics, science/technology, history and social science, English, world languages, and the arts. Study halls, lunch, passing time, extracurricular activity meetings, and assemblies (unless they are directly related to the curriculum) may no longer be counted. "One of the most shocking things we discovered [on the commission] were wide variances in the academic diet for students," explains S. Paul Reville, who served as chairman of the state's Commission on Time and Learning. "Some students were taking three study halls a day and others were taking six hours of high-level academic work. Now we're saying all students have a right to that full day of instruction."

The effects have varied from district to district. Joseph Rappa, another commission member and superintendent of schools in Leominster, MA, says he has had very little trouble implementing the new hourly requirements for core subjects because his relatively well-funded schools already had longer-than-required hours. He concedes, however, that the change is creating a time squeeze in other districts where money is spread thin, local teachers' unions are demanding more money for the longer instructional hours, and taxpayers are loath to approve a tax increase for additional school funding. Many districts in the state, for example, have moved to block scheduling not to meet curriculum objectives, but simply to eliminate 15 or so minutes of student passing time that had previously been built into the day.

The authors of the Massachusetts report, which was patterned in its content and form after *Prisoners of Time*, acknowledge that adding instructional time in itself will do little to boost achievement and that the real need is for greater flexibility. Reville notes that a more flexible approach to time, which implies longer school hours for staff and some students, would be more equitable because all students would have an opportunity to learn what they need to know, not just those who can "get it" in the time allotted. "We [on the commission] saw it as an issue of equity," he explains. "Under the usual system, time is the constant and learning varies—students either get it or they don't, then they move on to the next lesson. We need to have learning be the constant, and if it takes you x or y or z amount of time, the system should be flexible enough to accommodate that."

Do Parents Favor Change?

The state of Virginia provides another case in point. In the early 1990s, the Virginia Department of Education conducted a research review to determine whether the state should increase the number of days and hours students are required to spend in school. After its review, the research team recommended in 1992 that the state mandate no changes in the length of the school day or year (except to allow for increased time for "students at risk"). Borrowing heavily from Walberg's 1984 study, the team's report emphasized the differences between allocated, engaged, and productive instructional time and noted that only the last was strongly linked to improved achievement. Still, the Virginia General Assembly requested that the department of education calculate the cost of lengthening the school year. Lissa Power-deFur, the policy analyst who led the research team, says that once this cost-impact study was completed, interest in lengthening the school year quickly waned. "The legislators found out that each additional day would cost an additional $13.6 million in state and local funds for teaching staff and transportation alone," Power-deFur says. "Once you run those kind of numbers, you aren't left with too many people on board."

Power-deFur believes another factor that influenced her team against recommending an extension of school hours was the opinion of Virginia residents. More than two-thirds of those

polled in a 1991 statewide survey said they thought the length of the school year should remain the same. For people with children in the public schools, this number was even higher: 77 percent favored no change.

Other state polls, as well as national statistics, are in line with the Virginia findings. In the latest Phi Delta Kappan/Gallup Poll of the Public's Attitudes of the Public Schools, only 25 percent of those surveyed believe a longer school day would improve academic achievement appreciably in their district.

When the Georgia Partnership for Excellence in Education, a private organization that has been promoting a longer school year in that state, looked at residents' attitudes, its findings were similar. Only 6 percent of Georgia residents polled regarded lengthening the school day and year as "one of the most important ways to improve the quality of education in Georgia schools."

Year-Round Schools

Another reform movement to alter radically the way school time is structured seems to be growing, particularly on the West Coast: year-round schools. According to the San Diego-based National Association for Year-Round Education (NAYRE), there are now 2,460 year-round schools in 41 states. More than 1.7 million public school students in the U.S. now attend year-round schools—about five times the number that did in 1985—and more than a million of these are California children. Some year-round schools have students on multiple scheduling tracks adopted mainly to ease overcrowding by staggering vacations and spreading attendance out over the calendar year. According to NAYRE, more than three-quarters of year-round schools have adopted this schedule for the academic benefits.

There are indications that year-round schooling could make a difference for some students by simply eliminating the long summer breaks, and the need for transitions before and after them. In a recent review of 39 studies of the effects of summer vacation on student learning, Harris Cooper, professor of psychology at the University of Missouri, found that the summer break resulted in an average of one month of learning loss (based on a grade-level equivalent). The declines were most marked, Cooper says, in math computation and spelling skills. Perhaps most significantly, Cooper notes that the effects of summer break seem to be most detrimental for students of low socioeconomic status (those eligible for free or reduced-price lunch) and that some students from middle- and upper-income families actually show gains in some areas.

"The summer break has a different impact on students, depending on their economic resources," concludes Cooper. "Children from high socioeconomic status homes are more likely to engage in activities that provide practice of academic material."

The Real Question

Reville, Walberg, and others who call for change in the way schools use time admit that it is merely a structure, but one that is critical to the kinds of reform that can really make a difference in student learning. "Time is not a panacea," says Walberg. "But now kids are definitely handicapped by a school year that's too short."

Further, as the *Prisoners of Time* authors noted four years ago, the real question may not be whether changes in school hours make any difference, but whether there is sufficient public will to commit the resources that are necessary for real change. "None of [our recommendations] will make much difference unless there is a transformation in attitudes about education. The transformation we seek requires a widespread conviction in our society that learning matters," the authors say. "Until our nation embraces the importance of education as an investment in our economic future...nothing will really change."

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Small Schools Work Best for Disadvantaged Students

New research looks at who benefits most from small schools

By Peggy Farber

In October 1997, the *New York Times* published a draft proposal by the New York City school chancellor's office recommending that the city establish minimum school enrollments of 400 students for elementary schools, 600 for middle schools, and 800 for high schools in its district of more than 1 million students.

Just five years earlier, the city announced a program to create dozens of small schools with enrollments of under 400 students. Accordingly, community groups, school reformers, and local districts got together and started about 150 small public schools, some with enrollments of under 100 students.

Although Chancellor Rudy Crew backed away from the recommendations and assured reformers that he remains absolutely committed to small schools, in February 1998 he ordered about the half the city's alternative high schools to start increasing enrollments immediately, causing alarm among small school principals.

The New York controversy underscores the continuing tension between researchers who say small schools are better and policymakers who make decisions about how big schools will be. Is there an optimal school size? Do small schools—or large schools—benefit some children more than others? What does the research tell us about the impact of school size on academic achievement?

Research Favors Small Schools

Although the definition of what a small or large school is varies from study to study, there is, in fact, a large body of research showing that when looking at a group of schools of a variety of levels and sizes, there is a powerful relationship between school size and student success — most of which favors smaller schools. Among the findings:

- The largest schools, those with 2,000 students or more, are ineffective for almost all students and drastically impede the progress of impoverished children.
- The well-documented positive relationship between socioeconomic status and achievement is disrupted in small schools. In schools with enrollments under 1,000, economic status plays a significantly smaller role in determining who succeeds and who fails.
- The impact of school size on academic achievement is identical in rural and urban United States.
- Four hundred students are enough for a high school to offer an adequate range of courses. However, one recent study indicates that high schools smaller than that may be too small.

Two recently published reviews of the research literature on school size, "School Size, School Climate and Student Performance" by Kathleen Cotton, and "The Small School Movement: A Review of the Literature" by Robert Gladden, reach identical conclusions about what the research says: Small schools are safer, have significantly lower dropout rates, better attendance records, and better participation in a wide range of school activities.

Ironically, given the ongoing debate in New York, some of the sturdiest evidence that small schools work best for students from impoverished families comes from New York City, where a vibrant network of small public schools with enrollments of under 300 students at the elementary level and 500 at the secondary level was started 25 years ago by Deborah Meier. Meier says her daily encounters as a young teacher with the anonymity and humiliation poor kids endure in large urban schools appalled her.

"Education comes through relationships," Meier says, summing up the central concept demonstrated in research and practice in small schools. "You cannot introduce young people to the idea of what being an educated person is all about in the absence of relationships with adults who represent that."

Trend Toward Bigness

Despite research findings, the trend in school enrollments throughout the 20th century—and continuing today—has been toward consolidation and larger schools. Before World War II, the average U.S. school served 130 students. That average has increased to 650 students. The average U.S. high school has about 720 students.

Cities with sprawling ghettos are often assumed to be the districts that have schools with soaring enrollments. Indeed, of the 49 high schools in Los Angeles, 17 have more than 3,000 students, and nine have close to or more than 4,000 students. Most of the 74 high schools in Chicago are over 1,000 students strong, 11 have close to or more than 3,000 students, and the largest has over 4,000 students. In New York City, 35 out of 200 high schools have more than 3,000 students, and a dozen of those have more than 4,000.

However, rural children have also been subject to the effects of school consolidations and ever increasing enrollments. Since 1990, West Virginia has closed one-fifth of its schools, for example. While only about 25 percent of all American children attend high schools with more than 1,500 students, those percentages are much higher in Nevada (68%), Utah (62%), and Arizona (65%).

The goals driving consolidation—economies of scale and a variety of course offerings—first articulated by James Conant in his influential 1959 book *The American High School Today*, have been largely debunked in recent years by economists and researchers. Several studies cited by both Cotton and Gladden show per pupil costs rising as enrollments pass the level of a medium size school because of the added administrative expenditures that become necessary. Marty Strange, policy manager and research director of the Annenberg Foundation's Rural Challenge, says there's more myth than theory driving the nation's continuing romance with large schools. "Bigness is an article of faith in our society," Strange says. "We look for reasons to believe that big schools are better, big business is better, big farms are better."

Disadvantaged Students

Several studies have concluded that small schools are better, especially when the students attending are disadvantaged. One of the most widely cited studies, conducted by Noah Friedkin and Juan Necochea in California in 1988, was replicated in West Virginia in 1995 by Craig Howley. Researchers looked at achievement of children in 3rd, 6th, 9th, and 11th grades as measured by standardized tests in both large and small schools. Howley concluded, as Friedkin and Necochea did, that children from affluent families do slightly better in large schools than they do in small schools, but poor children perform at a much higher level in small schools than they do in large ones.

For his study, Howley focused on both elementary and secondary schools of various sizes. Howley recommends that maximum school sizes be considered according to the socioeconomic status of the students served. In a 1997 article summarizing his research, he wrote that an elementary school for an affluent neighborhood could accommodate 500 students, while another in an impoverished neighborhood should be no larger than 100. Similarly, middle schools and high

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schools should serve no more than 600 and 1,000 advantaged youngsters, respectively, with much lower enrollments in poor neighborhoods.

"If a school district is serving a large proportion of poor youngsters," Howley wrote, "it would be well advised to do everything possible to keep small schools open."

Strange, who is working with Howley on a series of new studies for the Annenberg Foundation, comments, "We all agree that schools are supposed to equalize things for kids, to strip away the weight of class and privilege. Big schools don't do that. They create environments that widen gaps."

These findings are reiterated in a 1997 study by Valerie E. Lee and Julia B. Smith, "High School Size: Which Works Best and for Whom?" For their study, Lee and Smith divided 800 high schools into eight categories, with the smallest having 300 students or less and the largest with more than 2,100 students. After tracking test scores of students over a six-year period, Lee and Smith found that the largest inequities occur in the largest schools. In schools with over 2,000 students, disadvantaged children learn very little. For the most part, wealthier children achieve at a fairly constant level.

Two additional findings emerged from Lee and Smith's analysis. First, in high schools with more than 2,000 students, all students, whether from privileged or impoverished communities, gain almost nothing in reading. Second, high schools with fewer than 300 students may be too small. Gains in reading and math are best for all students, regardless of wealth, who attend moderately small high schools with 600 to 900 students. However, smallness is not nearly as injurious as bigness. Students may learn less in tiny schools than they do in moderately small schools, but they still learn considerably more than they do in the largest schools.

Schools Within Schools

The practice of dividing large high schools into smaller houses has received far less study, and results are so far inconclusive, according to Cotton, a researcher at the Northwest Regional Education Laboratory who examined 103 studies for her 1996 article, "School Size, School Climate, and Student Performance."

Cotton points out that researchers studying schools within schools often leave out such crucial information as whether the smaller units are truly self-contained or whether they have any control over budgeting, staffing, and curriculum. She notes that most practitioners regard these characteristics to be essential ingredients of a successful small school.

There is no consensus on optimal school size, although Lee and Smith see enrollments in the 600-900 range as ideal. Still, a number of researchers suggest roughly 100 to 125 students per grade as a good size. Several researchers, notably David Monk and Christopher Roellke, have shown that high schools enrolling roughly 400 students are able to offer a curriculum that compares favorably with the range of courses in much larger schools.

Small schools are safer and have lower dropout rates and better attendance records.

Power of Relationships

Numbers can tell how but not why small schools are better. But researchers and small school advocates echo Meier's emphasis on the power of relationships to transform kids. They often use words like connections, trust, engagement, and democracy to describe their school climates.

Jacqueline Ancess, an associate director of the National Center for Restructuring Education, Schools, and Teaching (NCREST) at Teachers College, conducted hundreds of interviews with students in small, inner-city schools. She has 23 years' experience as a teacher and an administrator in the New York City public school system, some of it in alternative schools that she helped launch. According to Ancess, small schools work because they "allow close personal relationships between kids and teachers, kids and kids, and teachers and teachers. For many kids, the personal relationships, the sense of community, the power of community, becomes the conduit for learning."

Ancess sees teachers in small schools emboldened by the power of these relationships. "Adults in these school are relentless in their nagging. You have a culture of teacher perseverance. There are all these stories teachers tell one another in these schools about different kids they dragged kicking and screaming through resistance to produce quality work. The student resistance never goes away, but neither does the perseverance—it's built into the structure of the school." But Ancess warns that smallness is only one of the necessary elements: "Relationships have to be used as levers for high academic achievement. If you're not going to use them for that, it's a waste of time."

Cotton finds the discrepancies between what the research says and popular practice very frustrating. "If someone were setting out deliberately to stack the deck against poor or minority students, they couldn't do a much better job," she said. "It's one of those areas where the research points in one direction and the world is running as fast as it can in the opposite direction."

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The Bilingual Education Debate

A long-term view may be necessary to recognize benefits of bilingual programs

BY LAUREL SHAPER WALTERS

This year marks the 30th anniversary of the federal Bilingual Education Act, the original legislation that created special programs for students who are learning to speak English. Yet instead of celebrations, bilingual education is facing attacks and reexamination from all sides.

In California, the state with the largest percentage of limited-English-proficient (LEP) students, voters will decide on June 2 whether bilingual classrooms should be eliminated and replaced with one-year, sheltered English-immersion classes (see "Models of Language Instruction," p. 3). Officially named Proposition 227, the California ballot question comes in the wake of complaints by immigrant parents and some bilingual educators that students are languishing in bilingual classes without learning enough English.

Throughout the country, the California initiative has sparked a renewed debate about the relative effectiveness of the many different approaches to educating the growing population of LEP students. And it is also provoking some soul-searching among bilingual advocates who are arguing for the reform of bilingual education rather than its elimination.

"A lot of bilingual programs aren't as good as they ought to be."

After three decades, research on bilingual education is extensive, with hundreds of studies available. Yet much of it has been called into question by conflicting interpretations or has even been dismissed as methodologically unsound. In a 1996 review of the literature, for example, Boston University's Christine Rossell found only 25 percent of 300 program evaluations to be methodologically acceptable. The others often failed to use control groups or did not include a statistical control for socioeconomic or other differences.

Most research findings so far have failed to demonstrate the superiority of transitional bilingual programs, the most common type, in which students are taught in their native language while learning English. A few recent studies, however, have turned up some provocative new evidence of benefits for students who get a strong foundation in more than one language. "Late-exit" transitional bilingual programs and two-way programs that are intended to develop literacy in both the native language and English appear to help LEP students perform better throughout high school.

The Great Divide

In 1974, the U.S. Supreme Court ruled in *Lau v. Nichols* that schools must take "affirmative steps" to help students who do not speak English. The Court did not specify the type of program required, however. Today, the different approaches to teaching minority-language students comprise a dizzying list. Methods break down into different models, including those that incorporate the native language such as transitional bilingual education, as well as English-language programs, which include structured immersion and English as a Second Language.

Of the nearly 3 million LEP students nationwide, 74 percent are Spanish

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speakers, according to the National Center for Education Statistics. Vietnamese is the next largest language group, at 3.9 percent. Arguments about how best to teach LEP students usually focus on how soon they should be taught in English-only classrooms. The arguments are often motivated by political agendas, with strong views on both sides.

Part of the political debate stems from disparate goals. Many supporters of bilingual education view English learners as an opportunity to create truly bilingual and biliterate graduates. Opponents argue that tax dollars should not be spent on maintaining a child's native language and culture. The goal, from this perspective, is to help students learn English as quickly as possible and move into mainstream classrooms.

Students who received English-only instruction failed to sustain their academic progress in later grades.

At the same time, both sides want to be sure students keep up with their peers in academic coursework. Bilingual supporters say this is best accomplished by teaching in the native language and gradually introducing more English as students gain literacy in their first language. Critics say this transitional approach isolates students from their peers for too long and delays the acquisition of English.

But in schools whose students speak many different languages, models that include instruction in the native language—particularly the two-way model—are not always practical. Classrooms with students from a variety of backgrounds often rely on English as a Second Language programs, which offer intensive English instruction from a specially trained teacher for part of the day.

Shortcomings of Bilingual Education

Studies comparing different models have failed to demonstrate the superiority of transitional bilingual programs, despite widespread federal support and implementation of this approach. One of the most comprehensive studies in the field is a 1991 federally financed project that followed more than 2,000 elementary children over four years. It looked at three programs: structured English immersion (special instruction in English only), early-exit transitional bilingual education (students mainstreamed into English-only classrooms by the end of first or second grade), and late-exit transitional bilingual education (students not mainstreamed until the end of sixth grade).

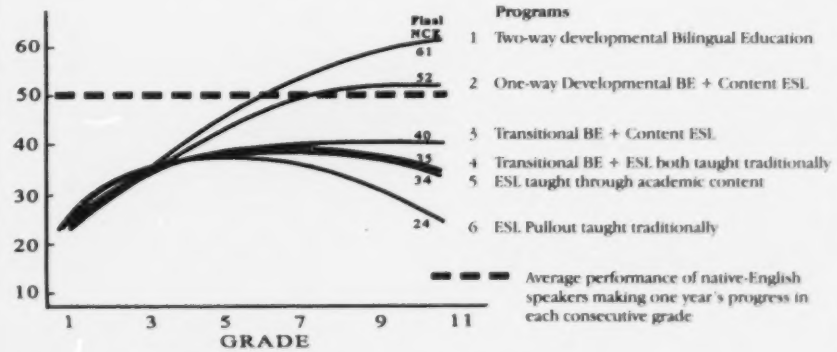
This evaluation, known as the Ramirez study after its principal author, has been used as both support for transitional bilingual education and ammunition against it. Students in all three programs learned English and made progress. Therefore, the study concluded, providing substantial instruction in a student's primary language does not delay acquisition of English. Yet it did not demonstrate that this approach boosted achievement or was superior to the immersion program.

Studies have also shown that many students stay in bilingual classrooms longer than the three years usually prescribed by the transitional bilingual model, and that when they are mainstreamed into regular classrooms they often lag behind their English-speaking peers.

Even the staunchest bilingual proponents readily admit that the current system of transitional bilingual education is failing many students. "A lot of bilingual programs aren't as good as they ought to be," says Catherine Snow, a researcher and professor at Harvard University's Graduate School of Education. "It's not surprising that parents of kids in those programs end up being dissatisfied." Snow chaired a National Research Council committee that announced in March that "initial reading instruction for children who do not speak English is best carried out in the child's home language."

A Case for the Long View

Recent research, however, suggests that a long-term view may be necessary in evaluating the effectiveness of language programs. In several studies—including the Ramirez study and studies by Virginia P. Collier and Wayne P. Thomas of George Mason University—children schooled in English-language programs made faster gains in English than comparable children in bilingual programs. But around the third or fourth year, the children who were



Patterns of K–12 English learners' long-term achievement in Normal Curve Equivalents on standardized tests in English reading compared across six program models. Data are based on 42,000 student records collected from five districts between 1991 and 1996.

Chart reprinted with permission from National Clearinghouse for Bilingual Education.

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Models of Language Instruction

Bilingual Immersion Students are taught in a separate classroom with most instruction in English. Part of the day, however, is set aside to develop concepts, literacy, and critical-thinking skills in the native language. The goal is for students to improve their English so they can join regular classrooms in two to four years.

Early-Exit Transitional Bilingual The most common model in use. The student's native language is used as a bridge, beginning with entry into school until they learn enough English to function in a regular classroom, theoretically two to three years. Programs vary in how rapidly English is introduced and which subjects are taught in the native language. The goal is to develop English skills without delaying academic content.

English as a Second Language (ESL) Students get special instruction in English from a trained specialist, either in the regular classroom or in a pull-out program varying from 30 minutes to half the day. The goal is to assist students who are learning subjects primarily in English.

Late-Exit Transitional Bilingual Education (Maintenance or Developmental Bilingual Education) Students receive some instruction in their native language until 6th grade, with the increasing use of English. The goal is to foster literacy in the native language as a foundation for later literacy in English, as well as to instill a positive attitude toward the native culture.

Sheltered English Immersion (Structured Immersion) Academic content is taught in simple English using context and gesture to explain meaning. Some programs allow teachers to use students' home language for clarification or have native-language aides available when needed. The goal is to mainstream students quickly.

Two-Way Bilingual Education Language-majority and language-minority students are taught together in the same bilingual class. Most programs are English/Spanish, but some are available in other languages. The goal is for all students to develop fluency in both languages.

taught at least partially in their native language began to catch up in English. While these students began to reduce the gap between their achievement and that of their native English-speaking peers, students who received English-only instruction failed to sustain their academic progress in late elementary and secondary school. Collier and Thomas looked at scores from nationally normed tests in all subjects, not just English, to judge the effectiveness of six different bilingual models.

Collier blames short-term studies for producing inconclusive research results on bilingual education programs. "In our current research," she says, "we have found data patterns similar to those often reported in other short-term studies focused on Grades K-3—little difference between programs." Significant differences show up only after students continue their schooling in mainstream courses, says Collier, whose ongoing research follows students through 11th grade. The preliminary findings show that only students who receive both English and native-language instruction through grade 5 or 6 are continuing to do well through high school (see chart).

In fact, the question of how long it takes students to become proficient in a new language is at the heart of the bilingual education controversy. Collier's research suggests that it takes students who receive English-only instruction longer (7 to 10 years) to reach average achievement, compared to students provided with strong native-language support (4 to 7 years).

But some critics say the Collier and Thomas study has not been subjected to peer review. "We only have their stated findings," says Rosalie Pedalino Porter, director of the READ Institute in Amherst, MA, an organization advocating English-language programs for LEP students. "I just cannot believe any child sitting in an American classroom can need 10 years to learn English." Collier and Thomas recently posted a 96-page research summary on the World Wide Web for review by other researchers and practitioners.

How Long Does It Take?

There appears to be no one answer to the question of how long it takes for a non-English speaker to become fluent enough to keep up in the classroom. What often gets lost in the discussion is the highly variable nature of language acquisition, says Snow. Students of normal intelligence can take vastly different amounts of time to master English. Socioeconomic background also plays a role.

Another important variable is age. "What you need to do for 13-year-olds and 5-year-olds is quite different," Snow says. Considerable research supports the theory that students who learn the "mechanics of literacy" in their native language can translate that knowledge into learning another language more easily. Therefore, says Snow, "the group that's really highly at risk are the students who arrive at school not knowing how to read. They're the ones that we really need to worry about."

The widespread myth that younger children learn languages more easily than older ones confuses the issue further. In fact, research shows that older students who are literate in their native language are faster second-language learners.

Mary Cazabon, director of bilingual programs in the Cambridge, MA, public schools, sees this in her district. "If students come in at the high school level literate and fully on grade level in their native language, they make a smooth transition into English and don't need 7 to 9 years," she says. "The younger children need to develop bilingually in order to maximize their learning potential," she believes.

In Cambridge, most Spanish-speaking students are taught in two-way bilingual programs with native English speakers. Research shows strong academic gains for both native-English and LEP students in two-way programs. Yet Cazabon recognizes that such a model is impractical for all languages and all ages. "You can't say that there is one exact model that is going to work for every child," she says.

Evaluation of Bilingual Classrooms

Some research, in fact, concludes that the specific models and languages of instruction may be less important than the quality of teaching that language-minority students receive. Researchers note the lack of interactive instruction in many programs for LEP students. When students have little opportunity to speak in class, they don't

learn as quickly. There is also a concern about the lack of books available to students in bilingual programs.

"Many concerned educators realize that in order to improve the education of bilingual students, we need to go beyond the debate on language choice and support for particular models.... Issues of pedagogy need to be addressed," writes Boston University professor Maria Estela Brisk in her 1998 book, *Bilingual Education: From Compensatory to Quality Schooling.*

Even in schools using the same model, there can be drastic differences in instructional approaches. In the Ramirez report, for example, students who attended one of the late-exit schools performed significantly better than students at the other late-exit schools. The researchers noted that the higher scoring students attended a kindergarten that emphasized critical-thinking skills in the native language. Another study noted dramatic differences in instructional practices between the lower and upper grades of the models compared, resulting in more differences between grade levels than between models.

"The focus needs to switch from languages to schools," concludes Brisk. "Schools, not languages, educate students."

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Bilingual Education and California's "English for the Children" Initiative

Researchers, practitioners, and policymakers debate the issues

On June 2, California voters will decide whether to eliminate bilingual education in their state. Proposition 227, also known as the "English for the Children" initiative or the Unz initiative after the name of its chief sponsor, proposes replacing current bilingual programs with a maximum of one year of "sheltered English immersion" (see "Models of Language Instruction," p. 3). In this case, parents would have to explicitly ask for their children to be placed in native-language programs.

If Proposition 227 passes, it could lead to a seismic shift in educating the nation's largest population of limited-English-proficient (LEP) students. With 1.4 million LEP students in the state, California is home to nearly half of the nation's population of young English learners. In March 1998, the state board of education gave school districts local control of decisions about educating LEP students. However, if Proposition 227 passes, it would override any other provisions.

In an effort to advance the dialogue about how best to educate students who do not speak English, the *Harvard Education Letter* asked some key supporters and opponents of the California ballot initiative to share their perspectives.

RON K. UNZ

Silicon Valley entrepreneur, Republican candidate in California's 1994 gubernatorial primary, and chief sponsor of Proposition 227.

"The current system of bilingual education just doesn't work. It may or may not work in theory, but it simply doesn't work in practice. As far as I can tell, it's never worked anywhere on a large scale in the United States in the last 30 years. The statistics are dreadful. Right now in the state of California, a quarter of all the children in public school don't know English. Of the children who start a given school year not knowing English, by the end of that school year approximately 95 percent still don't know English. Assuming that the purpose of bilingual education is to make sure that children can read and write English, it doesn't seem to do a very good job. Of all the immigrant groups in California, Latino children have the highest dropout rate, the lowest test scores, and the lowest rate of admission to college. So if bilingual education is a good thing, why are the people who are given the most of it doing the worst?"

MIKE HONDA

Democratic assemblyman in the California legislature, former high school teacher and principal.

"This proposition is instructionally unsound and untenable. It's an untested experiment. Each local school district should have the freedom to decide how to teach their limited-English-proficient (LEP) children. The Unz initiative says: "Thou shalt teach only one way." The school districts will have no authority and the teachers will be mandated to one methodology. Unz says that most LEP youngsters are failing. But when you look at the 1.4 million students who are limited-English-speaking, only 30 percent are receiving some sort of native-language instruction. Seventy percent are receiving English-only instruction. If you say the LEP population is failing, then its important to realize that the majority of LEP students are in English-only programs. This is what Proposition 227 wants—failure. Trying to solve a complex issue through the simplistic initiative process leaves things up to a lot of

rhetoric, promises, and intent. The real picture is that we don't have enough qualified teachers to teach youngsters who have language needs. And we don't put enough money behind teacher training."

ROSALIE PEDALINO PORTER

Director of the READ Institute in Amherst, MA, a national organization that helps school districts implement English-language programs. She coordinated the bilingual education programs in Newton, MA, for 10 years.

"This initiative is an attempt to correct a situation in California that has been counterproductive for too many years. The scale is tipped too far in the direction of native-language instruction that goes on for five to seven years for a lot of children. To finally have a preference for English-language programs would turn things around in a very important way. However, I don't believe that the one-year limit is a good element of the initiative. I think two years would have been much better. For 11 years, the California legislature has not been able to pass a bill clarifying what should be done for language-minority children. Finally, the Unz initiative comes along and citizens are going to be able to vote on what kind of education they think will serve these children best. It needn't have come to this, but one of the reasons it has is the insistence by the state's Department of Education on enforcing native-language programs, even after the bilingual education law expired. Certainly policy should be made by law and edict of education department officials. But when these people abdicate their responsibility, then somebody like Ron Unz comes along and says, 'Let's get the people to vote on this.' Bilingual programs don't produce better results. Is it worth the effort and the money to put kids into separate programs for five to seven years to accomplish the same results as when kids are mainstreamed within three to four years?"

MARY T. CAZABON

Researcher and director of bilingual education programs for Cambridge, MA, public schools.

"From my personal experience of over 20 years in bilingual education, I would never make the recommendation that the only way to teach English-language learners is to give them only one year of English immersion. I believe that education for limited-English-proficient students is not a one-size-fits-all approach. Efforts should focus on the best ways of serving students rather than recommending an overly simplistic formula that dictates one year of specialized instruction. We need first to ensure that all our students receive exemplary teaching. Then, we need to define what type of program fits their needs and what their parents want for them. That could even include a one-year immersion experience in English. But the key is to have a variety of viable options open to parents and students."

CHRISTINE ROSSELL

Professor of political science at Boston University, and author of Bilingual Education in Massachusetts: The Emperor Has No Clothes.

"When I look at the empirical research on the subject, it shows that bilingual education is a little bit worse than the regular classroom and a little bit worse than a structured-immersion classroom, which is what the Unz initiative proposes. I've gone into classrooms where, after three years of bilingual instruction, the teacher is still teaching in Spanish—the kids never really get to English. If you limit them to one year, then the danger of this happening is minimal. Research shows that kids get stuck in structured-immersion programs, too. The harm of being in a self-contained classroom consisting just of LEP kids would seem to be less if they're being taught in English than if they are being taught in their native tongue. Except that you can imagine how in U.S. schools, where newcomers arrive every day of the year, including the last, that these kids could get slowed down by the newcomers if they are there for more than a year. Although there's no research suggesting that one year is sufficient, it's common sense. Remember, most immigrant children go immediately into a regular classroom and they do better than those in bilingual education. The limit in the Unz initiative is not on special help—they can receive that their whole school career—the limit is on being in a self-contained, segregated classroom of only LEP children. Of course there needs to be more good research. But if you wait for research before you do anything, it could be the 22nd century. I think you have to go with a certain amount of common sense. American teachers will help a kid who doesn't know English. They're not going to give him Fs."

KENJI HAKUTA

Professor of education at Stanford University, and author of Mirror of Language: The Debate on Bilingualism.

"The Unz initiative goes against what we know about bilingual education programs. If you compare bilingual programs with English-only programs, kids in bilingual programs show better outcomes. Granted, it's not a huge difference, but it's measurable by even fairly crude research methods. What bothers me the most about the Unz initiative is the very reckless use of information, as well as open abuse of it. The figure of a 95 percent failure rate in bilingual education is based on very loose use of information. For example, those numbers don't take into account such things as this being a highly mobile population. There's really no research that says that the majority of kids will learn English in one year. Also, the Unz initiative is not written in a way to address academic content; it's all geared to English acquisition. This initiative certainly would put kids on hold for a year. Although many bilingual programs are undoubtedly poorly implemented, there are also many well-implemented ones that have had tremendous success in helping LEP students both learn English and advance academically. Despite these successes, bilingual education is not a panacea that will fix all the inequities that language-minority children come into school with—social inequities that have to do with immigration, poverty and so forth. Language of instruction is only one of the many factors involved in good schooling. Other factors include well-trained teachers, a balanced curriculum, systematic student assessment, parent involvement, and a supportive school climate, to name a few."

ROBERT L. FRENCH

Superintendent of the Orange County Unified School District, which eliminated all bilingual classrooms for 1,400 students in September 1997 after obtaining a waiver from the California State Board of Education.

"We sought a waiver because we were getting more and more students in bilingual education and fewer and fewer were successfully leaving. In addition, 4th graders going into the total English program were not doing very well. Some bilingual education programs work if you have outstanding teachers, quality materials, and an educationally sound program. The question is: "Is there enough time spent on English

skills?" We designed a program that we think is better. We bring in bilingual aides who rotate from classroom to classroom to make sure the students understand what is being said. Teachers in kindergarten and first grade are saying that students who cannot speak a word of English in September are speaking some English after three weeks. Our program doesn't meet the Unz initiative. I believe it's a poor piece of legislation. You have to do it the Unz way. I'm not for it or against it, but we think our program is better."

WALDEMAR ROJAS

Superintendent of the San Francisco Unified School District, where 43% of the 19,000 LEP students are enrolled in bilingual education classrooms. He is the first Latino president of the Council of Great City Schools.

"Proposition 227 is a one-size-fits-all approach, and one size *doesn't* fit all. We don't need an initiative or a legislative agenda to tell us how to teach our children. This initiative is devoid of research, of statistics, and of logic. Because of the shortage of bilingual teachers, many students are already in English-only programs—only 30 percent of California LEP students are in bilingual programs. If there is any place where there is failure, it is much more in the English-only model than the bilingual model. This initiative would reinstate the least effective model. It's just not doable by most kids. Some kids will learn some English, of course. They'll know playground English, but let them go in and try to read a biology textbook with that and see how well they perform. This initiative sets us back 30 years. We think it's absolutely in violation of *Lau v. Nichols* (the 1974 U.S. Supreme Court decision) and it makes a mockery of public education. We believe we can get this defeated because it doesn't make any sense, but otherwise we'll go in showing the research and ask for a restraining order."

Paying Attention to ADHD

Successful classroom management means training teachers to better serve students with ADHD

BY LEON LYNN

Over the past decade, the number of U.S. schoolchildren diagnosed with Attention Deficit / Hyperactivity Disorder (ADHD) and its related form, Attention Deficit Disorder (ADD), has increased dramatically. At the same time, recent changes in federal laws mandate that schools provide extra support to ADHD students in both regular and special education classes.

Much debate has focused on whether society has been too quick to overdiagnose and medicate children, most commonly with a stimulant called Ritalin. Many educators "are not really aware of the condition and how to diagnose it," says Edward Hallowell, an instructor in psychiatry at the Harvard Medical School. "There are places where half the class has been diagnosed with ADD, or school systems where it's looked upon as the plague and no one is diagnosed with it."

Some educators worry that the sharp upswing in diagnoses is due to overeagerness by health-care professionals to apply the ADHD label to children deemed unruly or disruptive. For example, Thomas Armstrong, an education consultant and former special-education teacher, fears that schools and parents sometimes put children on drugs instead of examining whether changes in classroom management and curriculum might improve their behavior and performance. "Are so-called ADD kids abnormal because they have trouble concentrating in a linear, monotonous, stimulus-poor, assembly-line classroom?" Armstrong asks.

Behavior modification techniques should be used as part of a comprehensive program for ADHD students.

Others believe the upswing in diagnoses is due instead to greater awareness of ADHD among parents and educators. "Ten years ago, probably 80 percent of the children with ADHD weren't getting diagnosed," says Russell Barkley, director of psychology at the University of Massachusetts Medical Center. "There are lots of anecdotes told about children being diagnosed too quickly, but there is no evidence that we have a national problem."

While some educators still express concern about overdiagnosis of ADHD, clearly there is increased awareness about the effects of ADHD on students' learning. What's more, changes in federal laws have prompted many school districts to focus on how to best serve ADHD students in the classroom.

Focus on the Classroom

Children with ADHD are easily distracted, have trouble controlling their impulses, and are often forgetful. Frequently, they have trouble staying still for even short periods of time. They often disrupt the classroom by calling out, by getting out of their seats at inappropriate times, or even by physically accosting their classmates and teachers. Typically, these students also have difficulty focusing on the teacher, remembering instructions, and finishing their assigned work.

While many kids may demonstrate ADHD-like behaviors, "the difference for ADHD students is that these behaviors are debilitating," says George DuPaul, an associate professor in the School Psychology Program at Lehigh

About ADHD

- Between 3 and 5 percent of U.S. schoolchildren (1.5 million to 2.5 million students) have been diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD). Another 5 percent of students are not hyperactive, but still suffer from Attention Deficit Disorder (ADD)—now considered a form of ADHD.
- The number of U.S. school-age children designated "other health impaired"—a category that includes ADHD—has grown by 89 percent since 1990. In 1991, the U.S. Department of Education decreed that students with ADHD were entitled to special education services.
- About 10 percent of ADHD students are taught in self-contained special education classrooms, while the rest spend at least part of the day in regular classrooms.
- Most children with ADHD appear to have inherited the disorder. About 20 percent of those diagnosed have suffered brain damage due to causes such as injuries, lack of oxygen during birth, and prenatal exposure to drugs or alcohol.
- Boys are at least four times as likely as girls to be diagnosed with ADHD; some researchers think this means that girls simply aren't diagnosed with ADHD as often as they should be.
- More than 20 percent of ADHD students have been held back in school at least one grade. Between 15 and 25 percent of ADHD students have been suspended or expelled from school due to behavior problems. Up to 35 percent of ADHD students may never complete high school.

Sources: U.S. Department of Education, Russell Barkley, Linda Pfiffner.

University. "If children are working in a classroom and something interesting is happening outside the window, most kids will glance at it and go back to work," he says. "But a student with ADHD won't be able to delay responding to the distraction. They can't delay response to stimulus. That's what gets them into trouble in school."

Simply medicating students who have ADHD isn't enough, experts say. Only half of the students who take Ritalin show any improvement in academic performance, according to DuPaul. Linda Pfiffner, director of the Hyperactivity, Attention, and Learning Problems Clinic at the University of Chicago agrees: "That's one reason not to use medications in isolation. The student needs a complete program of intervention."

Behavior modification techniques are increasingly being used as part of a more comprehensive program for students with ADHD. Recent research and a growing body of classroom experience have identified techniques that teachers and other staff can use to help ADHD students stay focused and connected to classroom activities (see "Classroom Strategies, p. 8"). Some of these techniques require only minimal new effort by teachers. While some have been proven to work, more research is needed. "There isn't an adequate number of outcome studies," says Pfiffner. "The problem is trying to separate out the influences of one part of an overall treatment program."

One District's Program

In Kenosha, WI, Kathy Hubbard oversees a teacher-education program that many experts and researchers point to as a model. About 5 percent of the district's 20,000 students have been identified as having ADHD; 70 percent of them are taught in regular classrooms. The program includes an extensive teacher-training program, staff in every school building to work with teachers and parents, and "attention deficit disorder education plans" for every student identified with ADHD. Hubbard, a clinical social worker, began the program in part because her son has ADHD. School leaders, some of whom also have children with ADHD, have given her strong support.

At the center of the program is a 16-hour teacher-training course. The course covers such topics as how to spot children who have ADHD and how to approach parents and other professionals about having a child evaluated for services. Teachers learn behavior management theory and techniques that do not detract from instruction for other students, as well as how to work with parents to reinforce these techniques at home. They also learn about curriculum adjustments that help kids with ADHD succeed in the classroom, and about the potential side effects of common ADHD drugs and the limits of drug therapies. At present, 900 of the district's 1,250 teachers have completed this course, Hubbard says.

A big part of Hubbard's job is raising teacher awareness about ADHD. Many teachers, for example, are unaware that the condition often persists in children through high school. ADHD kids are often harder to spot at that age because they aren't as hyperactive, Hubbard says, "and so teachers can think that the kids are just lazy or undisciplined." Sometimes teachers, especially in older grades, "just don't want to go the extra mile for these students because they don't have to do it for the others," she says. "But the longer we do this program, the more teachers are coming around. They see that there are ways to work with ADHD students that are less stressful for everyone. Then we win them over."

Teachers in Kenosha say the training has helped them in their jobs. "If the teacher acts appropriately, things can be a lot better," says Jolene Schneider, a 7th-grade English teacher. "And if you have the parents' support, you can be pretty effective."

Beth Luckhardt, a special education teacher, found that putting a container filled with rubber balls and joining blocks on the teacher's desk has helped several ADHD children sit still in a regular classroom. "Now those students know they can play appropriately with their hands when they need to, instead of doing other things that disrupt the class," she says.

Sharon O'Brien, a social worker in the Kenosha schools, has also seen firsthand how simple techniques can pay off. She cites the case of 6-year-old Jamie (not his real name), who fre-

COMING SOON

Full-Service Schools

How After-School Jobs Affect Student Learning

Hispanic Achievement

Classroom Strategies for Working with ADHD Students

Here are some techniques recommended by experts and teachers who work with students who have ADHD. While all students can benefit from these techniques, those with ADHD often can't succeed academically without them, experts say.

Don't Try to Handle Things Yourself If you suspect a student has ADHD, seek help from school personnel with specific training in the disorder, such as counselors, social workers, psychologists, and special education teachers. Working with parents is also critical to developing a consistent, effective plan.

Minimize Distractions Seat ADHD students near your desk or in the front row. Have all students put away unnecessary items during work times. Designate special places for tools, materials, and books, so everyone knows where everything belongs.

Create a Clear Structure Students with ADHD do best in a structured classroom, where expectations, rules, and routines are well-defined and communicated. Spell out directions clearly, and remember that ADHD students might not remember them all.

Consider Adjusting Your Curriculum Break down large tasks or assignments into smaller, less complex units, and give ADHD students positive reinforcement for finishing each part.

Pay Special Attention to Transitions Stop and discuss the specific behaviors you want children to think about as they make their way to the next activity (lunch, recess). Spell out a clear incentive for cooperating, as well as the consequences for breaking the rules or being disruptive. Try to intercede before trouble begins.

Start a Daily Progress Report A daily report that awards points for good behavior for a few concrete goals can be helpful in motivating ADHD students and in communicating with their parents.

Create a "Token Economy" Pick a specific goal for an ADHD student, such as turning in all homework or behaving well in class for a set period of time, and provide a concrete reward for meeting that goal. Reward or penalize the child quickly, so they make a clear connection between their behavior and the results.

Provide a Specified Time-Out Area This should not be seen as a punishment, but as a place where the student can go to calm down if necessary. Older students can be taught to sense when they are getting out of control and go to the time-out area on their own.

Balance Discipline with Chances for Success Teachers can establish some form of signal (touching their ear or the student's desk) that reminds the ADHD student that they need to get back on task without embarrassing them. Also, look for ways the child can experience success or make use of special talents.

Be Prepared to Change Strategies Be ready to try a new technique if an old one isn't working anymore. Sometimes older students have good insight into something they tried in the past that might work again.

quently disrupts his first-grade class, sometimes by hitting and biting his classmates. Currently Jamie is responding well to a "remembering bracelet," a Mickey Mouse watch he's invited to wear as a reminder to be kind to others. "If he acts out, he has to take it off, because it's not working," O'Brien says. "But he can put it back on as soon as he thinks it might work again."

Kenosha's program costs relatively little to operate, says Hubbard. The district pays her salary as program consultant and spends perhaps another $2,000 per year on her continued training. Having a full-time person on staff means the district avoids spending money hiring outside consultants to conduct trainings, she says. What's more, "we're saving money because we're evaluating kids early, we can treat them appropriately, and prevent unnecessary placements" to separate special education classrooms. Although no formal research study has been done to determine whether the students in Kenosha are better off since the program began, Hubbard feels the district is in a better position "to nip the emotional and learning problems of attention deficit disorder in the bud."

Need for Teacher Training

While Kenosha's program is considered extraordinary, it is not unique. In 1997, the University of Kentucky's Federal Resource Center conducted a national search for school-based practices holding promise for ADHD students and selected 25 examples, including Kenosha. From San Diego, CA, to Towson, MD, teachers, staff, and parents are participating in training and other programs to better identify and serve students with ADHD.

These programs are part of a necessary trend, since most kids with ADHD spend their time in the regular classroom, say ADHD experts. "I fully appreciate that teachers have a lot of demands placed on them," says Barkley. "But at the same time, public schools are growing increasingly inclusive. We can't have it both ways. We can't say we're going to teach these children in the regular classrooms and then not train the teachers to do it."

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Working Teenagers: Do After-School Jobs Hurt?

High schoolers who work more than 20 hours a week may be at higher risk for failure

BY KAREN KELLY

Two decades ago, politicians and educators extolled the virtues of part-time jobs for high school students as a way to foster independence, responsibility, and good work habits. Government panels like the 1980 National Commission on Youth also praised part-time work, suggesting it was "the single most important factor" in the transition from youth to adulthood.

Only a year before the Commission's report was published, however, the first of several warnings appeared, challenging the prevailing view that high school students were benefiting from their after-school jobs. That warning came from Temple University researcher Laurence Steinberg, who, in a 1979 report, concluded that after-school work had a detrimental effect on school achievement.

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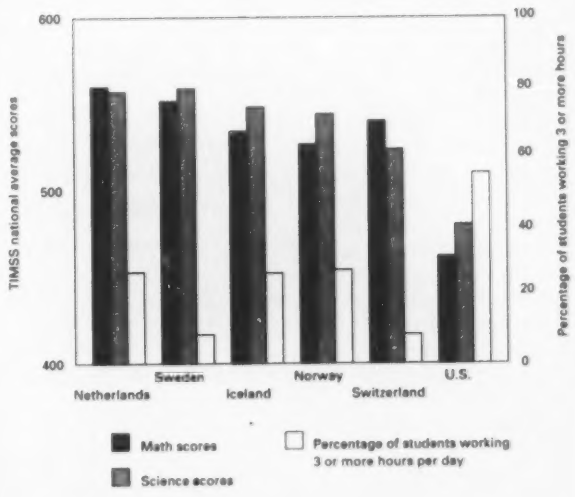
While Steinberg's work—among the most frequently cited in the field—has generally withstood the test of time, he and other researchers are beginning to focus on the 30 percent or more of students who work more than 20 hours during the school week. Growing evidence suggests that teenagers who work more than their peers after school may be more likely to have been disengaged from school before they took a job. Since all jobs are not equal, however, the search is on to define the most optimal work experience for teens.

These inquiries are not merely academic. Researchers who have surveyed high schoolers on how much they work estimate that one-third are working on any given day and that more than 80 percent hold a paying job at some point during their high school career. Data released this year by the Third International Math and Science Study shows that U.S. 12th-graders work at a far higher rate than their counterparts in the 20 other countries that participated in this test (see chart).



National average scores on the Third International Mathematics and Science Study (TIMSS) of students in their final year of secondary school, and the percentage of students in each country who reported working three or more hours a day. Chart compares scores of students in the top five scoring countries with those in the United States.

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While many parents and educators hope a part-time job experience will teach students how to manage their money, research findings suggest otherwise. Steinberg found that only 11 percent of students reported saving most of their money for college, and only 3 percent contributed earnings toward their family's living expenses.

Unlike young immigrants who had to help pay the family's rent in the early part of the century, Steinberg says teens working in jobs today are mainly middle class, suburban, and white—a finding confirmed by other studies. The bulk of their income goes to clothing, cars, entertainment, and, in some cases, drugs and alcohol.

Negative Effects of Work

As one of the first to investigate the effect of part-time jobs on academic success and aspirations, Steinberg has examined indicators such as academic achievement, class attendance, time spent on homework, and attitudes toward school among both working and non-working students. In most cases, he says, the working student is at a disadvantage, with negative effects increasing with the number of hours worked.

"Students who work longer hours report diminished engagement in schooling, lowered school performance, increased psychological distress, higher drug and alcohol use, higher rates of delinquency, and greater autonomy from parental control," says Steinberg.

Kids need time to talk about their on-the-job experiences.

For example, in a 1991 survey of 4,000 high schoolers in California and Wisconsin, the more hours worked, the steeper the drop in grade point averages and amount of time spent on homework. At the same time, students working more than 20 hours reported using drugs and alcohol 33 percent more often than their non-employed classmates. They also experienced greater psychological symptoms such as anxiety, depression, and fatigue. The emerging consensus among researchers, says Steinberg, is that the negative effects of employment are linked to how much, not whether, a student works.

This view has been confirmed most recently in a 1997 study by David Stern, director of the National Research Center for Vocational Education at UC Berkeley. Stern looked at the body of research conducted on working teens over the past 20 years, separating the surveys into two groups: one that included students who worked fewer than 15 hours a week, and one including those who worked more.

In this latter group, he found 10 studies that reported students working 15 hours or more had lower grades, did less homework, had higher dropout rates, and were less likely to go to college. Only three found no negative effects. "The preponderance of evidence indicates that students who work more than 15 to 20 hours a week while in high school perform less well academically," he concluded.

Is Work a Symptom?

At first glance, Stern says, it may appear that working long hours causes students to earn lower grades, but he stops short of making that claim: "Is it a question of cause and effect, or just some kind of spurious correlation?" he asks. "It could well be that this is just a selection process that's going on, where some kids are heading off to work and putting school behind. It may be that those who are more interested in work, work more."

That's a suspicion shared by researcher Jerald Bachman, an investigator with the University of Michigan's Monitoring the Future Project, which surveyed 70,000 high school seniors. Bachman wondered if the students getting into trouble after working long hours were the same students who would run into problems at school anyway. He looked at their grades before entering the work force, their plans for college, and whether they had ever been held back a grade. He found students with low GPAs, no college plans, and a record of retention were more likely to choose a job with longer hours.

"I would argue that most of the problems that correlate with working long hours are more fundamentally caused," says Bachman. "That may contribute to the spiral, but I think that the spiral is well underway at the time they elect to work the long hours."

In his earlier studies, Steinberg did not consider the prior academic record of students. But for a 1993 study, he asked the students to recall their GPAs, their educational plans, the amount of time they spent on homework, and their interest in school before they took part-time jobs. He discovered that the adolescents who worked longer hours were less academically inclined to begin with, and concluded that their drop in GPA was not necessarily the result of their work schedule. In addition, one-third of the working adolescents he surveyed admitted to taking easier classes in order to protect their grade point average.

Not All Work Is Bad

Bachman and other researchers are not willing to write off part-time jobs altogether. They say the most successful job experiences are those that are closely linked to an official school program. Often called School-to-Work or Work-Based Learning (see HEL, March/April 1997), these partnerships between school and industry provide students with learning experiences in a real-world atmosphere that can, in turn, strengthen their academic understanding.

The majority of teenagers are not working in this type of job, says Stern, but there is evidence that those who are have a more positive attitude about work and fewer academic problems than those whose jobs are not linked to a school program. A successful school-to-work program "must be carefully planned and monitored by people who understand both the work setting and what is to be learned there," says Stern.

In fact, some researchers have found

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Do U.S. Math and Science Scores Suffer Because of Work?

The test scores of U.S. high school students in math and science are lagging behind those of other countries, but so far, researchers have not been able to lay the blame on any one factor. Class size, age, gender, curriculum—none of these alone can adequately explain the difference in scores between high- and low-performing countries.

But Albert Beaton, a professor at Boston College and the international study director of the Third International Math and Science Study (TIMSS), has a working theory. At the American Educational Research Association conference held in April, he pointed to after-school jobs as a possible culprit: U.S. 12th-graders work at a far higher rate than their global peers who took the TIMSS test.

"Not only do our kids work their way through college, but our kids seem to be working their way through high school," says Beaton. Pointing to statistics that show one-half of U.S. students working three or more hours a day outside of normal school hours, he said, "That is very different from other places in the world, and I think we're going to have to look at that."

In fact, the findings are dramatic. Fifty-five percent of U.S. 12th-graders work more than three hours a day at a paid job, compared to an international average of only 18 percent. In contrast, three-quarters of the international students reported working less than one hour a day.

Temple University professor Laurence Steinberg devoted a chapter to this phenomenon in his 1996 book, *Beyond the Classroom: Why School Reform Has Failed and What Parents Need to Do*, noting that student employment is so rare in other countries that it's actually difficult for researchers to get an accurate measurement.

"Most European and Asian high school students would find it utterly astonishing that their American counterparts have four or five hours of free time each day to devote to an after-school job," wrote Steinberg. "And most would find it incredible that the average American teenager spends only about one hour per day on homework."

Steinberg adds that the United States "is the only country in the world that actively encourages large numbers of college-bound high school students to take on jobs during the academic year."

But the correlation between after-school jobs and low U.S. TIMSS scores is still a hypothesis. The authors of the TIMSS report warn, "It is too early in the process of data analysis to provide strong evidence to suggest factors that may be related to the patterns of performance."

—KAREN KELLY

students in work-based learning programs perform better academically than students in the traditional high school program. Larry Rosenstock, former director of the New Urban High School Project, studied work-based learning programs in 23 cities. He found a big spike in college entrance rates among the students involved in these programs.

"In Durham, NC, the mayor took me to visit the health careers program at a local high school," explains Rosenstock. "There, we discovered 90 percent of the kids in work-based learning were going to college, compared to 70 percent in the high school at large."

Most schools don't have the resources to implement such a program, however, and if they do, they're often not sure where to start, according to Carol Clymer, a senior program officer at Public/Private Ventures in Philadelphia, a nonprofit organization that helps high schools start work-based programs. One of the key components in work-based programs, says Clymer, is the opportunity for working teens to talk about their on-the-job experiences. Kids often can't articulate what they're learning at work, so they need time to think about it and talk about it in order to identify the positive components, she says.

While her organization hasn't conducted rigorous research on the subject, Clymer says her observations suggest that many working teens are learning about responsibility, teamwork, and communication on the job.

But in the absence of true school-work partnerships, researchers agree that there's a need for parents to restrict the number of hours a student works, especially if their academic achievement is suffering.

Federal and state governments set their own guidelines: under federal law, students under 16 cannot work more than three hours on a school day and 18 hours in an entire week. The government has not set guidelines for 16- and 17-year-olds, although several states have placed their own restrictions on older teens.

Stern would like to see governments institute a permit process, whereby students would have to have a certain GPA before they could get a job. Bachman agrees that more supervision could be helpful, but he contends that researchers, educators, and parents must begin to identify the characteristics of the ideal workplace experience. He says this is crucial, given the likelihood that school-year employment will remain an important part of the life of many, if not most, adolescents.

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Full-Service Schools Respond to Families' Needs

Quality of collaborations is a major factor in their success

BY PEGGY FARBER

To New York City principal Ginny Connelly, the rise of full-service schools means there is a safe place for her students to go after school to extend what they've learned during the day.

To Ann Aimes, a Kentucky school official, it means parents have somewhere to turn for emergency help when food runs short.

To Larry Bilick, a parent in Berkeley, CA, it means his school can begin to offer the basic health and recreation services his district used to provide before the passage of Proposition 13 wiped out extracurricular "frills" in his state in 1978.

Communities across the country are establishing school-based human services programs in record numbers to help poor and middle-class families handle an array of contemporary social problems caused by everything from welfare cutbacks to the rise of single parenting and dual-career families.

The schools go by a variety of names, including wrap-around schools, community schools, and extended schools. Still, whether in California, New Jersey, Kentucky, or New York City, full-service schools have several features in common:

- They stay open and active late, on weekends, and during vacations.
- They provide an unparalleled range of human services. In various combinations, the following exist in full-service schools across the country: psychological counseling, primary health care, dental care, after-school recreation, one-stop case management, homework help, job-training, adult literacy classes, parenting seminars, clothing and food banks.
- They bring into schools agencies that until now have not worked directly with the public education system, as well as professionals whose access to children has been hampered by school calendars and locations. The United Way, the Children's Aid Society, the New Jersey Department of Human Services, and the Missouri Department of Mental Health are all examples of agencies that have recently established school-based programs.
- They force unprecedented—and sometimes difficult—collaborations between school professionals and leaders of outside organizations.

Only a few schools, notably the four Children's Aid Society/New York City Board of Education schools in New York, offer a truly complete package of health and human services to students from sunup to sundown. But the term "full-service school," popularized by researcher and author Joy Dryfoos, is used by many people to designate a range of schools engaged in service delivery and after-school care.

Historical Roots

The concept of full-service schools can be traced back to the 1930s, when Charles Stewart Mott, a director of General Motors and a wealthy philanthropist, decided to do something about reports of juvenile delinquency in Flint, MI. With visions of transforming school buildings into neighborhood centers of recreation, civic activity, and lifelong learning, Mott gave money to local public schools to stay open late. His experiment drew national praise and, in 1936, Eleanor Roosevelt's personal endorsement.

Today's full-service schools are a response to a wide range of challenges that children face.

Today's full-service schools are a response to a wider range of challenges that children face, and this time around, federal officials, state legislators, and social service providers are at the table alongside the philanthropists. The Clinton administration has put the force of federal funding behind the concept, giving grants this year to 300 school/community partnerships that provide after-school learning, recreation, and family-support programs. Clinton has asked Congress to increase funding for these 21st Century Community Learning Centers from $40 million this year to $200 million in each of the next five years.

Contemporary full-service schools, like the community schools of the 1930s, have emerged from local initiatives, even though they may receive federal funds. "One of the wonderful things about this development is that there is no single model," says Margot Welch, director of Harvard University's Collaborative for Integrated School Services, a resource center for counselors and others seeking to bring services into schools. "What's happening is that they are growing in communities in ways that really allow the people in a neighborhood to choose what is most useful to them."

Three Communities, Three Different Programs

A look at three communities gives an idea of the ways that full-service schools are evolving. Junior High School 22 on New York City's Lower East Side, for example, is open every weekday from 3:00 until 10:00 p.m., enabling about 200 neighborhood children to stay and do their homework, explore the arts, and engage in community action—all while establishing strong connections with a caring team of adults. The program is run separately from the school by the Grand Street Settlement House.

The relationship between Junior High School 22 and Grand Street evolved because the school is a Beacon school, one of 40 in New York City. Funded by the New York City Department of Youth and Community Development, the Beacon Initiative sponsored after-school programs in 10 schools, beginning in 1991, during the worst years of urban violence, when safety was a top priority, according to Geoffrey Canada, a founder of the Beacon Initiative. As incidents of children being shot by stray bullets shocked New Yorkers, Canada and other community activists lobbied the state legislature to keep inner-city schools open as lighted buildings—beacons—offering children safe passage through adolescence.

Ginny Connelly, principal of Junior High School 22, is profoundly grateful that her school is a Beacon school.

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"Even if we have the most whiz-bang wonderful school in the universe between the hours of 8:40 and 3:00," Connelly declares, "most kids get into their first scrapes with the law between the hours of 3 p.m and 6 p.m." If there's no one to connect with her students in those hours, she says, "then we're slamming our heads up against a brick wall."

At the youth center inside Mezeek Middle School in Louisville, KY, staffers embrace a "whatever-it-takes" attitude to make learning possible for students who live in the poorest area in the state. The center's services run the gamut from a mental health clinic, which provides intensive, long-term counseling to about 100 students and their families, to a supply of emergency cash, food, and clothing for families in urgent need.

Successful collaborations require dynamic school and agency leadership.

Mezeek's youth center is one of hundreds established by the Kentucky Education Reform Act (KERA) of 1990 in schools where at least 20 percent of the student population lives below the poverty line. Ann Aimes, a home-school liaison, says the Mezeek center has given staffers like herself a way to respond to the pressing problems of poverty. "I would talk to kids all day long, but they were just drowning," remembers Aimes, who was a security guard at the school before the center opened. "Now we've got some place to refer kids, some place to give them some hope."

At Jefferson Elementary School in Berkeley, CA, parents are organizing to win a Healthy Start grant in order to establish a one-stop social service center for families who routinely have to travel to separate agencies around town to get help. They also plan an after-school arts and enrichment program at the school to replace programs cut as a result of Proposition 13. Under California's Healthy Start initiative, enacted in 1991, the state awards three-year seed grants to schools to link up with neighborhood service providers.

Although Larry Bilick and other Jefferson parents are working hard to win a grant, they are also critical of the state for using Healthy Start as a way to restore some services to schools, while still relying on local initiatives and funding. Twenty years ago, Berkely schools had nurses and free after-school recreation programs, Bilick points out. Now, in order to qualify for a Healthy Start grant, "you have to get a ton of in-kind services," he says. "You get a mental health agency in town to help, a copy center to do some xeroxing, the local university to provide interns. There are four other Healthy Starts in Berkeley. These merchants, the YMCA—they can't do it for everybody and they're starting to say, 'We've done enough.' "

Obstacles Arise

While there is almost no published research yet showing the effect full-service schools have on student academic outcomes, there is emerging evidence that the quality of the collaborations between schools and social service providers will be a major factor in whether the full-service concept can contribute to learning. A study of Kentucky schools by John Kalafat and Robert Illback has suggested that students in schools with successfully implemented service centers out-perform students in schools with poorly run centers on a wide range of measures, including Kentucky achievement tests, teacher evaluations of classroom behavior, and dropout rates. Kalafat and Illback defined successful full-service schools as those that, among other things, had functioning advisory councils composed of a wide range of community members, consistently evaluated themselves, and explicitly focused attention on children's educational improvement.

The Kentucky study underscores a trouble spot that is showing up in other preliminary reports. Researchers are finding that in many schools there is a wide—and undermining—gulf between school people and resource center staff. Principals do not always welcome the service providers, nor do they always grasp what social services can do for their students.

"Here we use the phrase 'Healthy Start Is Out Back' because so many schools put the family resources center in portables out back in the playground or on the side where the street is, so people could come to the center and NOT come into the school," says Mary Wagner, a researcher at SRI International, who did the first statewide evaluation of service delivery in the California program. "One of things that's key to which Healthy Starts survive and which don't is the extent to which they are really integrated into the school," she adds.

Keys to Success

Dryfoos, who recently summarized the state of the movement in a paper entitled "A Look at Community Schools in 1998," says that successful collaborations are extremely "people-dependent," requiring a lot of time, a lot of patience, and dynamic school and agency leadership.

James Connell, president of the Institute for Research and Reform in Education, a nonprofit education consulting firm, calls the gulf between school people and family service people "a tragedy." Connell has looked at dozens of school-based service programs and is an advisor to San Francisco's effort to implement a New York-style Beacon program. He advises bridging the gap by putting social service programs into the broader context of education reform efforts. When the call for social services comes out of a school's reform efforts, he says, "it's fully integrated into the school. It's not being plopped in because of some grant or somebody's brilliant idea that you ought to put services in schools."

He points to what happened at Clara Barton Elementary School in Rochester, NY, in the early 1990s, when the teachers and principal, working with Connell, instituted sweeping education reforms—refining academic standards, keeping children and teachers together for several years, and lowering the teacher-pupil ratio. "And then they said, okay, we need kids to come to school having been fed, we need to respond to the needs of families," Connell recalls. At that point, the principal reached out to community service providers to put in place a wellness center that is treasured by everyone—teachers as well as families, he says.

COMING SOON

Teaching Science

Peer Harassment in Middle Schools

Latino Achievement

What's Ahead

The trend of placing comprehensive services for families and children in schools is growing vigorously. The DeWitt Wallace–Reader's Digest Fund and the Charles Stewart Mott Foundation have just committed tens of millions of dollars to a variety of initiatives that expand the movement to new cities and rural districts. This spring, billionaire businessman and philanthropist George Soros announced that his first foray into giving in the United States will be a $25 million grant to New York City for school/community agency collaborations.

Dryfoos reports that full-service schools advocates are beginning to work with school reform advocates in order to bring the best school/community models to the national agenda. "It's time to turn a good idea into an ongoing sustained effort," she says, "with national reach and implications."

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Discussing Student Work Gives Teachers New Perspective

Project Zero's "Rounds" adapts a medical tradition for teachers

Once a month from October through May, some 35 teachers, principals, students, and other visitors from around the U.S. gather in a conference room at the Harvard Graduate School of Education to discuss a piece of student work in a process called "Rounds." Named after the medical tradition of "Grand Rounds" in which doctors come together to consider challenging cases, these sessions are sponsored by Project Zero, a 30-year-old research group at HGSE.

The Rounds at HGSE is one of several major efforts to get teachers to take a more in-depth look at their craft, including the "Critical Friends Groups" sponsored by the Annenberg Institute for School Reform and the "Tuning Protocol" used by the Coalition for Essential Schools (see HEL, March/April 1998). While some models use collaborative assessment to reach consensus about a rating or grade for a piece of work, Project Zero uses these sessions to "get closer to a child's purpose, and recognize the challenges and accomplishments in the work," says Steve Seidel, a Project Zero research associate who leads the monthly sessions. Teachers who participate by bringing samples of their own students' work often find the collaboration helpful, because it either confirms their view of the work or introduces new perspectives that they can use in working with students in the future, says Seidel. Participants sometimes start similar conversations in their own schools because they value the chance to give a single piece of student work the attention they feel it deserves, and because it enables them to reflect on their experience as educators, he says.

An Insider's View

To get an inside view of this process, *Harvard Education Letter* editor Nancy Walser sat in on the April Rounds, which focused on a story written by a 6th-grader. The story, "A Regular Legalist Day" (see p. 7), was written for Ann Jaquith, a California teacher who assigned her students a role from the Han Dynasty in Chinese history and asked them to write about it as part of an interdisciplinary course on history and English, called "Making Connections." Participants (identified by first names only) are shown only the written piece as it was turned in to Jaquith. Through the use of five principles that lay out ground rules for the discussion (see box, p. 8), participants begin by describing the work, then raise questions about it, and, finally, speculate on what the student was trying to accomplish. The presenting teacher then answers these questions about the writer and the assignment before bringing up some dilemmas of her own.

In this edited excerpt of a one-hour conversation, participants have already figured out that the story is historical fiction set in China. They note some inherent contradictions between the sophisticated imagery and glaring grammatical problems. Some participants also note that major conflicts in the story seem to have been left unfinished. Jaquith tells the group that the student has trouble with the mechanics of writing and often lacks motivation. Although she's read the piece numerous times, this is the first time she's aware of the parallels between the stories she has told the class about her travels in China and her student's story.

Ann: I told the students a story about being in a restaurant in China and eating duck and duck's brain, and, lo

A Regular Legalist Day

I opened my eyes and looked out the window. The sun was so bright I had to squint. I saw the same thing I saw every day, a maple tree and four beautiful lilies surrounding it. I stretched my arms and stepped out of bed.

I went and fetched three buckets of water from the small well outside my house. I put them on the stove and heat them up.since it took a while to heat up, I took off my robes in advance. Isaw if the water is hot enough (which it was) and poured them into my bath tub.The water was soothing so I took longer than usual. I felt it had been long enough.My skin was even beginning to wrinkle. I dried off and put my red shirt on and my pants.

I went in to my kitchen for breakfast.I had my usual; a bowl of rice with duck on top. My favorite part is the head because the brain is so tender. Just when I'm finished up I heard a knock at the door. I look to see who it was and it was none other than my brother.

"Oh hello brother ,what a surprise to see you here."I said

"I'm having a tea party ,may I borrow twelve plates from you ."he asked.

"Sure, but am I invited?"

"Yes of course my brother,"he said

"I'll be right out with the plates."

As I was taking the plates out of the cupboard a huge crash that almost made me drop the plates I was holding.

I ran out to see what happened with plates in hand. My bother was standing and an innocent look on his face with my precious vase at his feet broken into a million pieces.I let out a yelp and jumped back in horror.

"I was just looking at it when all of a sudden it floated out into mid air and dropped." he said lying through his teeth.

"It's one thing that you broke it but to lie on top of it is way to extreme.Get out of my house. I'll have to deal with you later!!!."

Now I was late for work. I ran out my door ,into my courtyard, down my unusually quiet street and in to the busy city of Changan,where I caught my usual horse drawn carriage.

"To the palace," I requested.

The driver slapped the reigns on the horse and we were off.

In about ten minutes we arrived at the palace.

"That will be four yuan sir."

I paid him and stepped down. I saw the usual thing ; two beautiful hand carved jade gates with very detailed dragons on them. Standing to the right of them I saw Letu, the guard.

"Hello Letu," I said

"Hey Leje, The emperor is waiting for you!"

As I walked in I saw many beautiful pieces of art by famous crafts people. I walked up the stairs and saw the emperor sitting on his throne. I bowed to him and he offered me some jasmine tea.

"Hello Leje, I have a very important issue to discuss with you"

"And what is that your highness?" I asked

"Well a scrawny peasant stole a ruby from my personal treasury.What should I do?"

"I think you should cut of his hands because it will teach him a very good lesson and others will learn his mistakes."

"That's a very wise idea," he said

We discussed a few more issues and before I knew it, it was lunch time. We ate fish, pork, duck, rice, vegetables and tea. While we were eating we heard yelling out side. We instantly got up and walked to the balcony to see what was happening. When we looked down we saw an angry mob of peasants yelling about not having enough food and money to support their families.

"Guards, go shoot a crossbow into the crowd to break up the riot," He commanded. They did as they were told and sure enough every one scattered in different directions.

"Well now that that's over with, I give you permission to leave."

I quickly ran down the stairs and out the door saving just enough time to say goodbye to Letu. Since the carriage didn't come in the after noon I had to walk home. After Forty five minutes of walking I finely reached my front gate. I went inside and saw my broken vase right were I had left it .I didn't want to deal with it then so I went into my kitchen to eat. You might think I shouldn't be hungry now after that lunch but after walking so far I was Ready to eat. I made myself a bowl of rice and fish.I ate it and after a long day of work I went straight to bed.

THE END

and behold, it's here. And the heating of the water. That's another story that I told about China. You can't drink the water, so you have to boil it. So I'm noticing now many of the details that are in this piece are not from things that she read, but are from stories that I told in class. About the conflicts, I also wondered about the ruby—how someone could get access to it in a guarded palace? If I were writing this piece, that's where I would have put my energy, not with the conflict with the brother.

Barbara P.: How did the student feel about the piece?

Ann: The way she feels about many things that she does—that she was glad to be done.

Chris: As in the big, bold font she uses for "THE END"?

Ann: Yeah. This was supposed to be a third draft, which is interesting to me. What do you do with a final piece that comes in and has so many errors? I think that there were things about it that she felt quite good about. I think that she was working on trying to use sensory images and details to give a sense of place. She loves art. One of the things that the students did in the process of writing was to draw a sketch of the house that their character would live in. We also looked at pictures of places like the Forbidden City to get a sense of what a palace might have looked like.

Chris: I think that with this kind of piece there's a real dilemma or a trade-off, because it's about history and it's also about writing. And when kids are doing historical fiction, often they're not going to do their best writing because they're trying to bring in this other thing that isn't so much what they own. On the other hand, I think it's a great way to do history. Kids usually like it, and say, "Oh, this is so much fun." Also, I think this is a finished thing. I wouldn't even ask her to do another thing on it.

Ann: I struggle with how hard to push her and when to just let go. Other students, when asked a couple of those questions, say, "Can I do another draft?" And her question is much more likely to be, "Am I going to have to do anything else?"

Beth: I wondered if she had done the drawing [of the house] before she did the writing. I wonder about having her visualize the other parts of the story, because it might help her key in to those parts that aren't as finished.

Barbara S.: It has to be our job to help her do a better piece. You know, I can't see this as the end state. Because her strength is the artistic, the visual, that's where she was really descriptive, and that's where you got that wonderful feeling. So I was wondering for her, first of all, if she expressed it artistically—the conflicts, the inhumanity—and then if she came back to the writing, how much more powerful it might be.

Kevin: This might be tough because it's part of a particular history unit, but I wonder if this wouldn't be something you could come back to after a while. Not right away, but in three weeks, in two months, say to this girl, let's look at the ending now and see if there are any ways we can push it.

Project Zero's Five Principles of Collaborative Assessment

1. Start by looking at the work knowing little or nothing about the context in which the work was produced.
2. Describe the piece, keeping in mind that no observation is too obvious. Withhold judgments as much as possible.
3. Most students approach their work with purpose and intent even if it is not immediately apparent.
4. When speculating about what the student was trying to accomplish, be ready to cite examples from the work. Keep coming back to the work.
5. Don't worry if you come away from Rounds with more questions than answers.

Putting "Rounds" to Work

Jaquith did go back to school and use this conversation in two different contexts. In a study group with eight other teachers at her school, Jaquith continued the debate about when a piece of student work should be considered "done." "We didn't reach a consensus, but we decided it's really important for students to get honest feedback," she reports. She also had a conversation with the story's author. Though it had been three months since the student wrote the story, she remembered the assignment well and was anxious to know what had been said about it during the April Rounds. "We talked about the verb tenses and I think I raised her awareness about the errors. We also talked about the unresolved conflict with the brother, and I was struck by how much thought she put into that character—that for him, punishing the populace was probably much easier than executing justice at home." In fact, the next two pieces the student wrote were stronger, Jaquith reports. "I had the sense that she had a renewed pride in what she was doing, that the one-on-one attention she got on that piece had some impact, because she showed more care and consideration in her next assignments."

Jaquith says the Rounds process is of "tremendous value" to her as a teacher because "others notice things you don't and raise questions that keep you thinking about your practice," she says. She also feels it is valuable for helping teachers to keep an open mind when looking at a piece of work before jumping to conclusions about what a student can or cannot do—something that can be key to helping students achieve a particular goal, she says. "A teacher who continues to think about her practice is always asking, why am I doing what I'm doing and how can I be more effective?" says Jaquith. "These questions are very valuable for modeling learning and risk-taking to students, because that's what they need to do to succeed. And in the process of doing that, I become a better teacher."

For Further Information

Harvard Project Zero, 323 Longfellow Hall, 13 Appian Way, Cambridge, MA 02138; 617-495-4342; www.LEARN@PZ. Send e-mail to info@pz.harvard.edu.

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From Sputnik to TIMSS: Reforms in Science Education Make Headway Despite Setbacks

More time is needed for widespread classroom changes

BY NAOMI FREUNDLICH

When final science scores from the Third International Mathematics and Science Study (TIMSS) tests came out late last year, U.S. students proved to be behind half of those in other developed countries by the eighth grade, and dead last by the final year of secondary school. The low scores, though shocking, were not unexpected: The U.S. has been trying to overhaul science education since the Russians launched Sputnik in the 1950s, but progress has been slow.

While many new science courses were developed in the 1960s in response to Sputnik, that period of reform halted shortly after U.S. astronauts landed on the moon, according to James Rutherford, former director of Project 2061, the American Association for Advancement of Science's program for revamping K-12 science education. With the crisis over, science reform stopped short of producing a "critical mass" of newly trained teachers. "It wasn't rooted in the schools yet, so we went back to the traditional ways of doing things," says Rutherford.

Worries over whether the U.S. can keep up in the global economy have ushered in the current period of science education reform, says Rutherford, whose 1990 book, *Science for All Americans*, is considered "the bible" for these efforts. Unlike the 1960s, though, there is general consensus on what concepts students should be learning from kindergarten through 12th grade. But translating those expectations into the classroom remains the central task. In-depth studies of TIMSS results, combined with case studies of reform efforts, are shedding even more light on the many changes that are still necessary. Among them are wider dissemination of newer inquiry-based science materials and intensive training of teachers in how to use them. "Trying to put together the pieces is the challenge now," Rutherford says.

The TIMSS scores don't reflect the major effort now in place to improve science literacy in schools.

Beyond Standards

Although the TIMSS scores don't reflect it, there have been major national and statewide efforts to improve science literacy in the schools. Some 46 states have adopted science standards or curriculum frameworks. Many of these frameworks are based on standards set by the American Association for the Advancement of Sciences (AAAS) and the National Academy of Sciences. In addition, about half of all states have instituted state-wide tests in science, just like those in reading and math.

But standards have proved to be only a starting point—teachers also need new materials and training to interpret and follow them. In a 1998 analysis of state standards, the Thomas B. Fordham Foundation gave only six states top marks for having standards that

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were sufficiently specific when it came to content. Since releasing its own "Benchmarks for Science Literacy" in 1993, the AAAS's Project 2061 (named for the year that Haley's Comet will return) has recently embarked on a series of workshops aimed at introducing standards to teachers in individual school districts, and is working on a database to help middle school teachers, in particular, find curriculum materials to meet them. "That's the big obstacle," says Mary Koppal of Project 2061. "People want to use standards and benchmarks, but they want to know what works."

Less Is More

Since the 1980s, evidence has been mounting that "hands-on, inquiry-based" materials recommended by national science standards impart facts just as well as the traditional lecture approach, with the added bonus of improving student attitudes toward science, (HEL, May/June 1990). Assessments like those devised by Ohio researchers (see box, p. 3) are also confirming that new inquiry-based approaches can raise scores, even among girls and minorities, groups that traditionally have not performed well in science.

Unfortunately, the textbooks that most schools rely on, especially in middle and high schools, have not been revamped to emphasize these new methods. "Despite a recognition that Project 2061 and other national reform documents are calling for reduced content and different approaches to teaching than in the past, publishers have made only incremental changes, layered on top of existing textbook formats and content," say the authors of an SRI International report on Project 2061.

The problem with U.S. science texts is that they take the "mile-wide, inch-deep" approach, says William H. Schmidt, research coordinator at Michigan State University's U.S. TIMSS National Research Center. Schmidt and his colleagues analyzed 491 curriculum guides and 628 textbooks from around the world to get a picture of how the U.S. taught math and science as compared to other countries. Based on their study "A Splintered Vision," Schmidt argues that the U.S. did poorly on TIMSS primarily because its science curriculum attempts too much and is repetitive from year to year. Countries that did better on TIMSS have more focused curriculum, he says. "If you look at a [U.S.] 8th-grade science book, it has 65 topics in it," he says. "The German and Japanese textbooks have five topics in them and the international average is 20. Science has big theorems, but the way it's conveyed to U.S. students is like a large laundry list."

Minnesota's experience with the TIMSS tests confirms Schmidt's thesis, says Bill Linder-Scholer, executive director of SciMathMN, a nonprofit reform organization that sponsored Minnesota's participation in the test. Minnesota students tied with Singapore's for the best scores on the TIMSS 8th-grade earth science test, primarily because 95 percent of its 8th-graders take earth science (as opposed to a mix of science subjects) and because there was "common agreement" among teachers to focus on only four topics within that subject, says Linder-Scholer. "We have no magic bullet," he says. "The fundamental lesson is about alignment."

"The way science is conveyed to U.S. students is a like large laundry list."

Some new curriculum is being developed to correct this problem. In stark contrast to the 65 topics found in the 650-page earth science text most commonly used in middle schools, the National Science Resources Center, for example, is developing an earth science course that focuses on only three topics taught entirely with activities and thin "student guides."

Centralized Efforts Work

Despite these pockets of progress, reformers at the National Science Foundation (NSF) have discovered just how difficult it is to bring about widespread improvement. Between 1991 and 1993, the NSF signed cooperative agreements with 25 states to carry out "standards-based systemic reform throughout their jurisdictions." These Statewide Systemic Initiative (SSI) grants averaged about $10 million, and there was great latitude in how the state programs could be executed. States typically contracted to universities or other outside groups to set up teacher development programs, introduce new curriculum, and try to measure success.

A study of the SSI program released in March by SRI International concluded that it "had limited, moderate, and uneven impacts on classroom practice." The programs that failed often suffered from what program manager Patrick Shields calls the "let a thousand flowers bloom approach"—giving money to many local initiatives to do what they want with it. However, centrally managed programs like Ohio's (see box, p. 3) that feature intensive teacher training did far better. "Programs that were able to show a real impact on students and teachers were those that started early, were able to provide intensive high-quality professional development, and used pre-made curriculum materials," said Shields.

Learning by Doing

Teacher training plays an especially important role in science education efforts for two major reasons: science as a field is constantly buffeted by new discoveries, and the learning curve is steeper because teachers generally have had little specialized training in science. The average elementary school teacher has taken only one college course in science.

Reform efforts focused only on new curriculum without adequate teacher training appear to be "doomed," say John Cannon and David Crowther of the University of Nevada. After spending $1 million on a new hands-on, activity-based curriculum called "Science Place," one large Nevada school district saw its reforms fail because teachers at its 56 elementary schools didn't know how to use it, according to a 1997 case

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Ohio Reform Shows Results

When the National Science Foundation announced its intention to award millions of dollars in grants for statewide science education reforms, Jane Butler Kahle, a professor at Ohio's Miami University, teamed up with physics Nobel laureate Kenneth G. Wilson to come up with a plan. Their idea was to train middle school teachers in inquiry-based physics—a "gatekeeper" subject that students need to take in order to take higher-level science courses. The goals were to create a more knowledgable teaching force and to engage more female and minority students in the subject, since these students are more likely to opt out of science after middle school.

What they came up with "was successful beyond anyone's expectations," wrote Kahle in a 1997 article for *Science Educator.* Dubbed the "Discovery Institute," the six-week summer program trained teachers in math, life science, and physics. Taught by master teachers, mathematicians, and scientists at eight sites throughout Ohio, the institutes stressed teaching teachers "the way we wanted them to teach," says Kahle. Teachers received stipends of up to $60 a day and could earn college credits by attending. Unlike the typical lecture-lab science course, those taking Discovery's Physics By Inquiry institute learned by doing. For example, teachers were told to put together light bulbs, batteries, and strips of aluminum to make the bulbs light as part of learning about electricity.

To reach even more teachers, a two-week summer workshop for individual districts was developed to help teachers work through actual curricula in a way consistent with national science standards. "Teachers who go through the two-week institutes are very likely to go the next summer to the six-week institute because we whet their appetite," said Kahle. Whereas many programs peak at reaching the 10 percent of teachers who usually volunteer for reforms, the Discovery Program reached almost 40 percent of middle school teachers in participating districts. The initial cost of both the two- and six-week training was about $25 per hour per participant, but this figure decreased as the program grew.

To measure the program's success, Kahle and her colleagues surveyed teachers, principals, and parents, and visited schools to gauge changes in teacher practices. They also developed their own test to see how well students of teachers who did and did not participate in Discovery training were able to think conceptually and interpret data. Results show clearly that students in "reform" classrooms with teachers who have attended Discovery Institutes are more likely to write about how they solve problems, to work in small groups, and to use hands-on materials than those in "non-reform" classrooms. Results also show that teachers in reform classrooms use more inquiry-based teaching approaches, which require students to support their claims, encourage questions, and inspire students to discuss subjects. These practices remained evident three years after teachers were trained.

Test scores were not only higher in reform classrooms, but girls actually outscored boys within their racial groups. African Americans in reform classrooms scored as well as white students in non-reform classrooms. Studies like these are done every year, and results are published and given to state legislators to boost support for the program. Ohio has also changed teacher certification criteria to require "intense experiences with inquiry," says Kahle.

"We have changed attitudes about what constitutes good professional development in the state," she says. "That may be the long-lasting effect of what we've done."

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Ohio's Systemic Initiative: Discovery, 420 McGuffey Hall, Miami University, Oxford, OH 45056-1693; 513-529-1686 (evaluation) or 937-775-2726 (K-12 programs); http://www.discovery.k12.oh.us.

study by the two researchers. Although the publisher provided training for 10 local teachers, who were then paid to provide workshops for other teachers, only 59 percent of the district's teachers attended even a single workshop. Teachers complained that there was not enough time during the year to complete the units or to work out problems. Without continued training for teachers using "Science Place" and incentives for teachers to attend workshops, the reform was "doomed from the beginning to trip and fall," the authors concluded.

The best professional development in science is collaborative, stresses content learning, and is done over a period of weeks with opportunities for follow-up discussions, experts say. There is no one model. In Massachusetts, for example, state education officials are using videotapes to show teachers how to teach to statewide tests that 10th-graders will have to pass to graduate beginning in 2003. In New Jersey, a partnership with the Merck Institute for Science Education and local districts stresses fundamental science concepts, as well as classroom management skills for keeping teaching materials stocked and organized.

Some of the most effective training is being done far away from schools in government labs, science museums, and even on beaches, says Susan Loucks-Horsley, a director of professional development at the National Research Council. Programs in these settings can show teachers exactly what is meant by inquiry-based learning so they can model and guide discussions in the classroom, she says. "They can take a field trip to the beach to look at erosion, develop questions, and do an investigation. All of a sudden they have questions about what they are seeing and realize they need to know more," said Loucks-Horsley. "Inquiry-based learning is not just posing questions to teachers and kids; it's exploring physical and natural phenomenon in a way that they learn serious scientific principles."

In the end, the goal is not simply for U.S. students to score better on TIMSS, reformers say, but to construct the classroom of the future. "The longer thing, which we think will take 25 to 50 years to accomplish," says Rutherford, "is to really put in place the next system, the next curriculum that will turn out, across the board, students who are really comfortable with math, science, and technology, and know how to use it and control it and who can participate in a more interesting and safer world."

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Latino Achievement Reexamined

Researchers seek new ways to help this population succeed in school

BY LAUREL SHAPER WALTERS

Latino children are the largest minority group in U.S. schools, now outnumbering African-American children by 35,000. They are also the most academically troubled racial or ethnic group, with persistently high dropout rates and low test scores. While the nation's overall school completion rate rose steadily during the past two decades, the Latino dropout rate remained at 30 to 35 percent, more than double the rate for African Americans and 3.5 times that for whites. "According to every educational indicator, Hispanic Americans are making progress at alarmingly low rates," concluded President Clinton's Advisory Commission on Educational Excellence for Hispanic Americans in a 1996 report.

"The more Americanized Latino immigrant students become, the worse their attitude in school."

Researchers looking at why this achievement gap exists have come up with a long list of possible influences, including poverty, discrimination, segregation, the stresses of immigration, frequent language limitations, and poorly educated parents. Yet even when economic backgrounds, immigrant status, and language differences are taken into account, Latino students still have higher dropout rates than other ethnic groups.

The umbrella term "Latino"—often used interchangeably with the term "Hispanic"—encompasses a wide range of subgroups all from Spanish-speaking countries, each with its own history and culture. Much of the research on Latino educational achievement focuses on Mexican Americans, since that subgroup accounts for two-thirds of all Latinos in the United States.

Given the persistent and unique problems Latinos as a group have in school, some explanations have centered on the culture itself. One widely held theory—increasingly viewed with suspicion by researchers—is that Latinos value family loyalty and work over grades and advancement to college, especially for girls. Recent research is chipping away at that thesis. Some of the most valuable research has mixed quantitative data with an ethnographic approach of interviewing students, parents, and school administrators to help identify the kinds of struggles students face. The results of this approach are debunking long-held myths and providing better insight into how schools can help this growing segment of the population succeed in school.

Questioning the Deficit Model

One study in particular has made waves for refuting the idea that Latinos come to school lacking the capabilities and attitudes to succeed. This vein of thought is considered to be part of a broader "deficit theory," which, from its beginnings in the 1920s, sought to explain the academic failings of minorities by blaming the students and their families, according to Richard Valencia, associate professor of educational psychology at the University of Texas and author of *The Evolution of Deficit Thinking*, a 1998 book on the theory.

Recent work by Harvard cultural anthropologist Marcelo M. Suarez-Orozco and his wife, research psychologist Carola Suarez-Orozco, has shown persuasively that it may be the process of assimilating into American culture that has more influence over Latino achievement than any factor related to their native culture. Beginning in 1990, the couple conducted a three-year research project comparing the school experience of immigrant students from Mexico with children still living in Mexico, second-generation Mexican Americans, and non-Latino whites. They interviewed 189 students ages 13-18, as well as teachers and parents, to study the impact of school dynamics, peer and family life, and attitudes toward achievement on school performance. They found that immigrants are performing better than second-generation or U.S.-born Latinos. As one teacher noted, "The more Americanized [Latino immigrant students] become, the worse their attitude in school."

Marcelo Suarez-Orozco believes these findings refute the deficit theory. "Children do not arrive with a cultural deficiency or baggage," he says. "New

arrivals come with tremendously high aspirations. If you control for everything else, immigrants get better grades, they study more, they spend less time watching TV, they spend less time hanging out with their friends. The problem is that over time, for many reasons, those things aren't sustained."

Pinpointing the causes of declining motivation and achievement among Latino immigrants is proving difficult. "It's not going to be a one-dimensional answer," says Gary Orfield, a professor at Harvard Graduate School of Education, who is editing a new book on Latino civil rights. "There are a lot of different things going on, and trying to weigh the relative importance of them is not easy."

To begin with, the self-selection process for immigrants may inflate the picture of their initial success, researchers say, because immigrant families arrive with optimism about the future and a desire to better themselves. A 1996 RAND report found that immigrant children and parents of all ethnic groups have higher educational aspirations than their U.S.-born counterparts. Inexplicably, this gap in aspirations is three times larger for Latinos than for other groups.

Some have theorized that the immigrants' optimistic attitudes may give way to frustration in the face of real-life obstacles, which may affect family or student attitudes toward school. John U. Ogbu, an anthropologist at the University of California, Berkeley, argues that some minority groups give up on education after seeing that it does not offer them the same rewards it brings the majority population. Over time, minority youth learn not to invest in education because they do not see a long-term benefit in the job market, Ogbu argues. Census data from 1990 support this argument: the mean annual income for white male high school graduates was $22,521; for Latinos it was $14,644.

A Closer Look at Schools

Other researchers are looking more closely at what schools may be doing to hinder Latino achievement. Scholars such as Enrique T. Trueba of the University of Texas argue that many schools fail to provide a culturally appropriate education for minority students.

"Latino experiences and cultural capital need to be counted as strengths," Trueba writes. "The incorporation of students' language, culture, and experiential knowledge should not conflict with teachers' responsibility for providing students with particular academic content knowledge and learning skills."

While few researchers would resurrect arguments along the lines of the "deficit model," there also is a shift away from simply blaming school practices such as tracking, poor counseling, and retention, and a renewed recognition that sociocultural factors might, in fact, play a role. For example, it's still important to examine student and family attitudes towards school among ethnic groups because such factors do affect educational outcomes, argues Russell W. Rumberger, an education professor at the University of California, Santa Barbara. "If you believe in cultural differences, that doesn't necessarily imply a deficit," he says.

But other researchers warn against drawing any conclusions about Latino culture as a whole. Harriet Romo and Toni Falbo studied 100 "at-risk" Mexican-origin students in Austin, TX, over four years. "We found no single culture of the home, nor was there a single culture of the school," they wrote in *Latino High School Graduation: Defying the Odds*, a 1996 book based on their study. "Furthermore, our statistical

How Schools Can Help Latino Students Succeed

Much of what Latino students need to succeed academically applies to all students, regardless of ethnicity. But beyond basic school reform, there are some strategies schools can use to help both Latino students and their parents not only survive the school years, but also thrive. Here is a synopsis of researchers' recommendations for improving Latino achievement:

- **Emphasize prevention of problems.** Most students show warning signs when struggling academically or considering leaving school. If, for example, a student has two unexcused absences in a row, schools should contact the parents directly.
- **Personalize programs and services for Latino students.** Connecting with adults and establishing mentoring relationships can make a significant difference, particularly for high schoolers. Some strategies for achieving this include reducing class sizes, creating separate houses or academies within a large high school, teachers "adopting" a group of students, and older students mentoring younger ones.
- **Make schools accessible to parents.** This may require providing transportation to meetings, going to homes to meet with parents who do not have phones, providing translators, and sending home correspondence written in Spanish.
- **Provide parents with frequent feedback about their children's academic progress.** Many Latino parents are unaware of the schools' expectations for their children. Standards must be communicated clearly and repeatedly.
- **At the elementary level, provide after-school tutoring and enrichment related to in-class assignments.** Trained volunteers in the classroom offer another opportunity for adult-student connections.
- **Set high academic and behavioral standards for students.** Latino students should be actively recruited into the highest level classes and provided the extra support needed.
- **Provide intensive academic counseling for students that includes parents.** Encouraging college attendance requires early and regular attention to courses taken and preparation for standardized testing, as well as parental support.
- **Incorporate Latino culture and traditions into the classroom when possible, particularly at the elementary level.** Students should feel that their cultural background is welcomed and respected by the school.
- **Replicate programs that have proven effective.** In school districts across the country, targeted efforts are improving Latino achievement and lowering dropout rates. School do not need to start from scratch. The Hispanic Dropout Project's 1998 report, for example, lists nearly 50 successful programs nationwide (See For Further Information, page 6).

—Laurel Shaper Walters

Sources: Romo and Falbo, Rossi, and Secada.

analyses indicate that characteristics of the home culture did not predict whether the student graduated." For example, whether students spoke English or Spanish at home had no statistical link to whether the student graduated from high school.

Romo and Falbo, both professors at the University of Texas, argue that "cultural differences between homes and schools do not inevitably become educational barriers unless school policies make them so." They found that most schools overestimated the resources of the parents in their study. Many could not read or write and had little knowledge of the fundamentals of the education system, making it difficult for them to support their children's education. For example, many parents could not read correspondence because it was sent home in English only, and they had no way of getting to teacher conferences because they didn't have a car.

Nearly all Latino students want a college education. They just don't know what to do to get there.

Lowering Barriers to College

Other studies point to a lack of "educational capital"—knowledge of the educational system—as an explanation for why a very small percentage of Latino graduates are eligible for higher education. In California, Latinos are 30 percent of the K-12 population, yet less than 4 percent of Latino high school graduates in the state meet the requirements for admission to the University of California. The University of California's Latino Eligibility Task Force is tracking a group of students from the 10 California high schools graduating the most Latino students, weighted by geographical distribution for rural-urban representation. The median average school completion rate for parents of these students is less than six years.

COMING SOON

Building Social Skills in the Classroom

Value-Added: The New Accountability Tool

Researchers and Teachers Can Help Each Other

In spite of stereotypes suggesting that Latino families don't value education, this study and many others show that nearly all Latino students and their parents want a college education. "They just don't know what to do to get there," explains Eugene Garcia, dean of the graduate school of education at the University of California, Berkeley, and chairman of the task force. "These parents didn't even go to high school, so they have no idea what kind of hoops their children have to jump through to go to college."

This lack of knowledge about educational institutions is not being compensated for by academic counselors in the high schools, the California study found. Many Latino students were not on a college-prep academic track, and 50 percent of those who were taking all the right courses never took the SAT. In an effort to boost Latino college enrollment, the Eligibility Task Force has recommended that the University of California eliminate the SAT requirement for admission. This would increase the proportion of eligible Latino high school graduates by 59 percent, according to the report.

The task force also notes that nearly 60 percent of Latino applicants to the University of California from 1993 to 1997 were female. "There's a cultural notion that Latinos will not send girls to college," Garcia says. "But when we interviewed girls they said there's no problem going to college as long as it's near home."

Future Directions

To best understand the Latino experience in U.S. schools there needs to be comparative data from other immigrant groups, researchers say. Marcelo Orozco-Suarez is in the first year of a five-year comparative interdisciplinary study of Afro-Caribbean children from Haiti and the Dominican Republic, Asian children from China and Taiwan, and Latinos from Mexico and Central America. The study includes 35 research sites on both U.S. coasts. "The comparative data allows you to look at more than one level," says Suarez-Orozco, "and find the processes that mediate the adaptation of immigrant children to U.S. schools."

Yet much of what needs to be done to help Latino students does not require further study, researchers argue. "These kids need schools that are safe, that are integrated, where the materials are up to date, and the teachers are trained properly," says Suarez-Orozco. "Those kinds of things don't require rocket science."

"Attention to Hispanic school completion must become a salient part of the national agenda on education," write the authors of "No More Excuses," the final report of the Hispanic Dropout Project, a group commissioned by Education Secretary Richard Riley to study the problem of Hispanic dropout rates. "That this crisis has remained largely invisible results in inaction and allows the many excuses for doing nothing to go unchallenged," the authors wrote.

In the past several decades, a national effort has helped lower dropout rates and close the achievement gap between whites and African-Americans, says Walter Secada, director of the Hispanic Dropout Project and a professor at the University of Wisconsin in Madison. "We can do the same things for Hispanics."

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Laurel Shaper Walters is a freelance education writer based in St. Louis, MO.

The TIMSS, the *Times*, and the Times

By Howard Gardner

INSIGHTS

Like most Americans, I was surprised and disappointed by the performance of 12th-graders on the recent Third International Mathematics and Science Study (TIMSS). After a promising performance at the 4th-grade level, American youngsters fell sharply, vying with Cyprus and South Africa for the lowest scores on these lengthy, primarily short-answer tests. Even though nearly every aspect of the Study has been justifiably criticized, and it is therefore difficult to know exactly how to interpret the results, no one can take comfort in this poor performance.

I was invited to comment by the *New York Times*. Instead of critiqing the TIMSS, I proposed to discuss what should now be done in our country. A few days later the *Times* ran my piece under the misleading title, "Low Scores Are No Disgrace." Alas, neither the *Times* nor the annoyed readers who wrote in understood my argument. I welcome the opportunity to state my position more clearly.

Fifteen years ago, when the U.S. economy was in the doldrums, many commentators blamed the schools. "If only we could improve our students' learning," so the argument went, "we would once again be a competitive country." Today the United States stands in the midst of the greatest economic revival in memory. Still, by most accounts, our schools have changed little. Evidently there is not a strong tie between the performances of the schools, however measured, and the country's economic success.

This state of affairs, I argue, gives us a special opportunity. We do not have to accept other countries' definitions of what counts for an educated student. Instead, we have the luxury of asking, "What, really, do we want our students to know and how can we be convinced that they know it?"

At present this question is approached historically and retrospectively. We take our curricula and assessments largely from what has been done in the past; we let graduate school dictate what is needed in college and college dictate what is needed in high school. This scenario makes sense if (like Singapore and Brazil) we seek a nation of engineers. It proves eccentric if we seek an informed and engaged citizenry.

Let me put my cards on the table. I do not care that much if a student has mastered algebra, geometry, and precalculus if she knows all the basic facts of geology, astronomy, physics, and biology. Indeed, if we are honest with ourselves, we must admit most of us never use this information. Unless we become scientists, engineers, or mathematicians, the major use we make of this knowledge is to help our children prepare for examinations twenty years later!

What *is* important for citizens? In mathematics, broadly construed, adults need to be able to manage their own personal finances—balance a checkbook, arrange the proper mortgages, invest shrewdly for old age; to make prudent decisions in the light of the laws of probability; to understand and evaluate the actions of legislators in collecting and dispersing large sums of money. In sciences, individuals should understand the nature of the scientific enterprise: what is a fact, a theory, a hypothesis, an experiment. Individuals should be able to understand a newspaper report about a new medical treatment, evaluate the evidence on which it is based, and decide whether to believe it. Put bluntly, in a country where half the people follow astrology rather than astronomy, and where many reject the theory of evolution, some appreciation of science *writ large* is far more important than committing to memory facts that will soon be forgotten.

If these sentiments were taken seriously, we would have to revisit vast parts of the curriculum. Following this, we would tackle far fewer subjects and probe them in much greater depth, we would give students a sense of what it means to understand a topic in detail, and, one hopes, whet their appetites for continuing to learn and understand deeply for the rest of their lives.

I am under no illusion that American youngsters, any more than others, would do well initially on measures of such understandings. Indeed, most of our assessments the world over do not even probe such understandings, though there is no reason why they could not. But at this unique moment in scholastic and economic history, we have a rare opportunity to revisit what we are doing, to make major changes, and to put our assessments in order.

How to get started? We need a few dramatic counterexamples to the standard view of science and mathematics education epitomized by the TIMSS. In the spirit of the Coalition of Essential Schools, such counterexamples must foreground an understanding of how one thinks scientifically and the capacity to carry out the mathematics needed to negotiate the daily life of an engaged citizen. Many curricula can yield these outcomes. The crucial complement is a set of performance-based examinations in which students have the opportunity to demonstrate these pivotal understandings. Students who do well on such measures will not only be better prepared for the world, but will also prove more attractive to colleges and universities. And should such effectiveness be demonstrated, I have little doubt that other countries will follow suit, just as they have aped American practices of IQ testing, SAT examinations, and other short-answer instruments.

Back to my title. The TIMSS is not a bad instrument, the *Times* was kind enough to print my article. Yet neither of these institutions appreciates the crucial role of "time" in the education that I am advocating. The TIMSS surveys whether one has encountered and gained a glancing familiarity with hundreds of facts, concepts, and equations; it does not probe any understanding in depth. It takes a great deal of time to develop the understandings that are needed to be an informed citizen in the world. Still, that investment of time is worthwhile because once it has been made, it can be drawn upon for the rest of one's life and passed on to succeeeding generations. At one time it was called a liberal education.

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Bystanders Can Play a Role in Battling Harassment

Day after day, researchers from Hofstra University watched as Joey harassed one girl after another in his 7th-grade class. One day, Joey picked one of his more unattractive classmates for a long-running monologue about the various sexual favors she could do for him. Adding insult to her injury, other classmates egged him on by saying, "Joey would never go for slag like that." Finally the teacher spoke up, saying only, "Oh, Joey, calm down." Never, in three years of observation, did Joey suffer any real consequences for his behavior.

For both teachers and students, middle school is seen as a place "where people make fun of you, where you have to be more careful—a place where you learn to take it," says Charol Shakeshaft, professor of administration and policy at Hofstra who is writing a book about the three-year study of nine New York area middle schools. Ironically, while both students and teachers seemed to accept the environment as a given, both groups told Hofstra researchers that they would like "something to be done."

For Discussion

But what if Joey's classmates had behaved differently? What if they had told him to stop the harassment, or had gathered around the girl to defend her. In fact, enlisting bystanders in the fight against peer harassment may be the hidden weapon needed to combat the pervasive problem of bullying and sexual harassment (gender-related bullying) in schools.

"The notion of the bystander appears to be really important to changing the culture," says Eleanor Linn, senior associate director at University of Michigan's Programs for Educational Opportunity. Linn completed a review of interventions this year, which was commissioned by the Hamilton Fish National Institute on School and Community Violence for the U.S. Justice Department. As it turns out, no intervention or program to combat peer harassment has yet been evaluated. However, a look at what works when it comes to preventing sexual abuse, date rape, and other violence has turned up some clues about just how effective bystanders can be in stopping harassment, she says.

When it comes to designing an effective program, research shows that kids tend to retain information if adults tell them they can use it "to help a friend," says Linn. This means students can be motivated to stand up to harassers if they see it as part of protecting their schoolmates. Bystanders are also in a better position to stand up to harassers, says Linn. Unlike targets, bystanders are not as traumatized, so confronting a harasser can be easier.

Not many educational materials address the role of the bystander, says Linn. Some that do are published by the Wellesley Center for Research on Women at Wellesley College. Rather than tell teachers what they should tell students to do, however, these materials contain activities for helping students come up with their own ideas about how they can respond to harassing acts.

In *Flirting or Hurting?* (for grades 6-12), for instance, students discuss how they would have acted if they'd witnessed several incidents that became well-known court cases. In *Bully Proof* (for grades 4-5), students discuss the "degrees" of courage it takes to confront a bully depending on whether the bully is a friend or an unpopular student. In *Quit It!* a new curriculum for grades K-3 published this year by the Wellesley Center, students are asked how they can "listen to their strong side" to help someone being teased on the playground.

The language adults use when encouraging children to talk about peer harassment is very important, says Nan D. Stein, a Wellesley researcher who helped develop and write all three books while documenting the high rates of sexual harassment in schools over the past two decades. Although sexual harassment is serious and illegal, children can more readily understand the concept when it is put in the context of "gender-related" bullying, she says.

Despite a recent U.S. Supreme Court decision shielding schools from damages, they can still be held liable for incidents of sexual harassment under Title IX. And even though families have increasingly resorted to lawsuits, incident rates of sexual harassment in schools have not changed much since the early 1990s, according to Stein, who is also a coauthor with Linn of the new Justice Department report. Surveys show that girls have an 80 to 97 percent chance of being sexually harassed in school, while boys have a 60 to 80 percent chance.

Stein, Linn, and other experts say it's time for schools to use a whole arsenal of strategies to battle the problem. Awareness campaigns, posters, schoolwide surveys, policies, incident reporting procedures, and counseling are also part of the solution. So, too, are students.

— Nancy Walser

For Further Information

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Wellesley College Center for Research on Women. Wellesley College, 106 Central Street, Wellesley, MA 02181; 617-283-2507.

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Learning to Listen May Help Children Learn to Read

Researchers examine whether lessons in "phonemic awareness" can prevent reading problems

BY NANCY WALSER

In the early 1990s, language arts coordinator Marguerite Held was put in charge of working with students who, for some reason, were not reading at all by January of their 1st-grade year. The school was in a suburban district outside Houston, TX. The students were largely middle-class, with parents who had read to them at home. Their teachers had introduced them to phonics as part of the district's literature-based program, yet some students were still unable to read.

Held, a teacher for 17 years, had a hunch what was wrong. "They all had a similar problem, and that was that they could identify the individual sounds [of the alphabet], but they couldn't blend them. They couldn't take the word *mat* and make it into *cat*, *bat*, or *rat* without really thinking about it." In other words, these students didn't understand that the "m" of "mat" was separable from the "at," that the letter "m" represented that particular sound, and that putting the sounds (represented by other letters) into the same slot in the word would generate different words. This understanding constitutes "phonemic awareness." In short, their prognosis for becoming "real readers," Held realized, was poor.

After reading a number of research articles, Held developed her own remedial program. She began by teaching children how to listen to sounds within words—how to count the number of sounds and manipulate the sequence of sounds to make different words. "It seems like it would be so easy, but there are so many children who can't do it," she says. "But still you can teach them and you can see some success." In her six years of tutoring, all but one of the children she worked with became readers, she reports.

Most reading problems can be prevented by appropriate attention.

One in five children is estimated to have difficulty learning to read, according to a report entitled *Preventing Reading Difficulties in Young Children*, recently released by the National Research Council (NRC). Reading difficulties are more likely to emerge among children who are poor, are minorities, attend urban schools, or arrive at school not speaking English. But many children like those in Held's school also face difficulties learning to read. Most reading problems, the report claims, can be prevented by appropriate attention to language development, development of phonological awareness, and development of literacy and print skills during preschool and kindergarten.

In the search for preventive strategies, some researchers have emphasized the importance of phonemic awareness, a skill they believe pre-readers should develop to ensure that reading progresses smoothly. Phonemic awareness is the knowledge that words can be segmented into smaller units of sound (called phonemes). It is reflected in

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children's abilities to produce rhymes, to engage in games involving phoneme-additions, -deletions, and -substitutions (such as in "eeny, meeny, miney, mo"), and to represent sounds with letters when engaged in invented spelling.

Most children make this connection through the normal course of language development (see box) combined with early exposure to reading at home or in preschool. However, children who don't "get it" will have difficulty sounding out and blending new words, remembering them, and learning to spell, according to the NRC report.

A Strong Research Base

The research base linking phonemic awareness to success in reading is strong and well documented. Analyzing the research on this link, authors of the NRC report concluded that "dozens of...studies have confirmed that there is a close relationship between phonemic awareness and reading ability, not just in the early grades but throughout the school years.... Even prior to formal reading instruction, the performance of kindergartners on tests of phonological awareness is a strong predictor of their future reading achievement."

Individual researchers go even further. "In the last two decades, a scientific body of evidence has accumulated that points to poor phonological processing deficit as a core cause of poor reading," writes Barbara Foorman, a professor of pediatrics at the University of Texas-Houston who served on the NRC committee. "Burgeoning evidence exists that deficits in this area can be ameliorated through appropriate training, particularly with children in kindergarten through grade 2," she adds.

Among the many recommendations made by the comprehensive report is that children who need it get "explicit instruction" in phonemic awareness. Such instruction should be "matched to children's needs," and those who have mastered it "should move on to more advanced learning opportunities."

"What the committee is recommending is that each kid get a chance to learn [phonemic awareness], whatever it takes," says Catherine Snow, a professor at the Harvard Graduate School of Education and chair of the NRC committee.

In response to the overwhelming research indicating its importance, at least two states have begun screening kindergartners for phonemic awareness. In Virginia, a voluntary pilot program attracted 90 percent of the state's school districts to a testing program that also provides some funding to help children who fail the screening. In Texas, a mandatory screening is being implemented for the first time this fall for all kindergarten, 1st-, and 2nd-grade students in the state.

Still, researchers caution that in the big picture of reading development, phonemic awareness is only one predictor of success, along with letter knowledge, vocabulary, and "readiness" skills. For example, vocabulary size also appears to be a critical factor in beginning reading, as is the learning of letter names.

Researchers caution that phonemic awareness is only one predictor of success.

"Although there is a high correlation between phonemic awareness and success in beginning reading,...we know that children learn these things within a rich literacy experience that includes reading, writing, listening to stories, and talking about them," says Dorothy Strickland, a professor of reading at Rutgers University who was also an NRC committee member.

"This [research] should not imply that simply working on these things in isolation will automatically lead to success in reading," she adds.

The NRC report echoes the conviction of most reading educators in emphasizing that, while developing phonemic awareness is an important step in the prevention of reading difficulties, attention to children's language development, to their development of print knowledge, and to maintenance of positive affect and motivation to read are equally important, says Snow.

How Explicit Should Instruction Be?

Just how explicit "explicit instruction" of phonemic awareness should be is the most contentious issue among those specializing in this area of literacy. In this area the research on effectiveness is also less clear.

Because phonemic awareness appears to be so critical to the process of reading, and because not all children—especially those in impoverished inner cities—pick it up at home or at school, some argue that schools need to systematically teach it through a sequential program beginning with kindergarten.

Part of the urgency to teach phonemic awareness skills no doubt comes from the widely stated national goal of having all students reading at grade level by the 3rd grade. But others point to evidence that problems—if not corrected by the end of 1st grade—can have reverberations that go far beyond the realm of reading.

"I have seen kids who can memorize, and they kind of slip through until 2nd grade, when the number of words they have to memorize just gets to be too much," says Held. "Then you are not only dealing with reading problems, but emotional issues as well, because they know they are behind."

To reading adults who already understand that words are made of different sounds, the concept of phonemic awareness may seem obvious. But just try to get a 6-year-old to listen to the sounds in a word before jumping to its meaning, says NRC committee member Marilyn Jager Adams, a reading consultant based in Cambridge, MA. The author of the 1990 book, *Beginning to Read: Thinking and Learning About Print*, Adams has also co-authored two curricula for teaching phonemic awareness for kindergarten and 1st grade.

In her curricula, lessons are structured around interactive sound games that teachers can use with a whole class or small groups. "It begins by diving

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How Children Learn That the Alphabet Is a Symbol System for Sounds

FROM BIRTH
- Begin to distinguish the sounds of human language

ONE TO TWO YEARS OLD
- Early vocalization gives way to enjoyment of rhyming language, nonsense word play, etc.
- Word comprehension emerges, followed by a sharp increase in vocabulary
- Develop syntax, ability to use 3 or 4 words in a sentence

PRESCHOOL YEARS (THREE TO FOUR YEARS OLD)
- Know that alphabet letters are a special category of visual graphics that can be individually named
- Pay attention to separable and repeating sounds in language (e.g., "Peter, Peter, Pumpkin Eater")
- Phonemic awareness begins as the perception of speech moves from holistic to segmented units of sound, including the appreciation of rhyme and alliteration
- Begin to match letters of the alphabet, like the first letter of one's name, to a sound.
- Increasing vocabulary allows conversation about complex and abstract ideas while sharing books with adults, fostering greater comprehension skills.
- Develop ability to think about language, pronunciation, word usage, sentence structure, and text form

KINDERGARTEN/FIRST GRADE (FIVE TO SIX YEARS OLD)
- Learn to identify letters and letter-sound correspondences
- Use phonemic awareness and letter knowledge in invented spelling; begin to decode words by mapping letters to phonemes.
- Begin to read words by sight
- Make transition to "real reading" of novel words

Source: "Preventing Reading Difficulties in Young Children." National Research Council, 1998

into language play so kids will understand and listen to the sounds of words," says Adams. "It also uses texts designed to exercise the phonics. Kids are invited to do invented spelling from the moment they can, and there's lots and lots of reading.

"It's a balanced program," she continues, "but it's not the only way. The issue is, are you watching the kids to make sure they are with you? If you're drilling, that's a sign that something's gone awry."

A 1998 study by Foorman and others compared the progress of 285 disadvantaged students in classrooms using Adams's "Open Court" curriculum—which features 15-20 minutes of sequenced phonemic awareness activities ("direct code")—with those receiving two other types of instruction. In one other type, students were given sequenced phonics lessons in combination with texts that feature certain spelling patterns ("embedded code"); in the third type, students were taught phonemic awareness skills informally within the context of a literature-based program ("implicit code").

According to the authors, students in the direct-code classrooms "improved in word reading at a faster rate and had higher word-recognition skills." The impact was greater among children who had weaker phonological awareness coming into the classroom. However, students taught through the implicit-code method had more positive attitudes toward reading, and there was no measurable difference among the three groups on spelling achievement or vocabulary growth.

Nevertheless, Foorman and her colleagues concluded that "results show advantages for reading instructional programs that emphasize explicit instruction...for at-risk children."

Opposing Views

That is not the conclusion drawn by Gerald Coles, a psychologist and former teacher in Ithaca, NY, who analyzed phonemic awareness research and programs for his 1998 book, *Reading Lessons: The Debate Over Literacy.* Programs that focus on teaching phonemic skills have not proven their effectiveness, he says, since they are unable to separate out other effects like initial skill levels. In some studies, even children who had high phonemic awareness did not show improved reading ability, he notes.

> ***"If there is a crisis in reading, it's with minority children not learning to read."***

"The problem I have with this inordinate emphasis on skills is that it presumes that it's the instructional magic bullet for solving the literacy problem, particularly for poor children," Coles says. He argues that scripted programs taught with basals like "Open Court" limit children's reading choices and deemphasize motivation by teaching in a "lock-step" fashion. What teachers need more, he says, are smaller classes so they can individualize instruction to suit their students' needs.

For her part, Foorman decries the lack of flexible grouping in classrooms, but feels there's a need for basal programs to teach phonemic awareness because of high teacher turnover and lack of adequate preparation to teach reading, especially in inner cities. "If there is a crisis in reading, it's with minority children not learning to read," she says. Foorman urges administrators to look at the background and preschool experience of their students, as well as their families' level of literacy, in making curriculum decisions.

When it comes to individualizing reading instruction, designers of new phonemic awareness screening tests in Virginia and Texas say the tests should help teachers do that by pinpointing which students are having trouble in which areas. Virginia's Phonological Awareness Literacy Screening Program (PALS) sponsors a web page that allows teachers to input test results and gives instant feedback on which students are weak in which phonemic skills. In addition to getting test results, teachers can also use the page to learn about

instructional strategies for teaching the needed skills, says PALS co-director Marcia Invernizzi.

With data collected on 57,000 students so far, PALS researchers intend to identify which districts can help students improve the most in terms of phonemic awareness between the fall and spring tests, according to Invernizzi. "When we find them," she says, "we'll go find out what they did."

For Further Information

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Programs Fostering "Emotional Intelligence" Show Promise

Some practitioners see critical needs being met by social and emotional curriculum

BY MICHAEL SADOWSKI

Acting out, fighting, racial and other slurs, bullying, willful disruption of learning. Many teachers are faced with problem behaviors like these at one time or another: some face them virtually every day. And as every teacher knows, the educational costs of these behaviors can be tremendous.

Debby Collins, principal of the K-5 Plymouth School in Monrovia, CA, says that until recently most of her staff believed lack of discipline was a serious impediment to learning in their classrooms. Collins recalls several teachers' comments:

- "Kids don't know how to cooperate or act nicely toward each other."
- "There is far too much acting-out behavior."
- "What's killing us, keeping us from being the best we can be, is a lack of discipline."

Having tried traditional approaches such as detention, time-outs, and calls to parents without much success, Collins and her staff decided it was time to look for an alternative. After reading *Teaching Children to Care: Management in the Responsive Classroom* by Ruth Sidney Charney, the Plymouth staff became interested in and eventually adopted the Responsive Classroom approach to social and emotional learning. They started the program with the 1997-98 school year, and Collins says things are already beginning to change.

Developed at the Northeast Foundation for Children in Greenfield, MA, the Responsive Classroom approach focuses on building such skills as cooperation, healthy assertion, responsibility, empathy, and self-control. Program components geared to building these competencies include "morning meeting," in which students practice conversation and listening skills as they share stories and concerns; "guided discovery," whereby teachers deliberately guide students' introduction to classroom materials to foster curiosity and respect for these materials; "academic choice time," which encourages students to make personal investments in their own learning; and classroom organization that includes student "interest areas" and facilitates collaborative work in different-size groups.

The overarching idea behind SEL programs is developing social and emotional skills, including self-esteem and respect for others.

The Plymouth School completed its first year of the Responsive Classroom program last spring, with all 630 students in 31 classes participating. Collins made sure that all adults in the building—not only teachers, but also secretaries, custodians, and other building staff—participated in the training so that messages and expectations would be consistent throughout the school. While it is too early to gauge the program's effect on academics, Collins has been encouraged by teachers' comments and the changes she notices in children's attitudes and behaviors. "The kids are developing more empathy for each other. They're better able to see another person's point of view," she observes. "There are fewer discipline referrals, and kids seem to be able to cooperate better. It really does create a more orderly environment where kids are safer."

Of course, classroom and playground conflicts still occur, but Collins has noted differences in the way children handle them: "In situations where there has been a physical fight or somebody takes something from somebody else, now kids are more likely to be honest about it and to take more responsibility for their actions."

Responsive Classroom is just one of 23 programs listed on the website of the Consortium for the Advancement of Social and Emotional Learning (CASEL), an organization established in 1994 and dedicated to the development, promotion, and evaluation of social and emotional learning (SEL) pro-

grams. While these programs vary in objectives, approaches, and grade levels reached (ranging from preschool through grade 12), the overarching idea behind SEL programs is developing social and emotional skills, including self-esteem, respect for others, personal decision-making, avoiding high-risk behaviors, conflict resolution, and effective communication. In this way, SEL educators hope to preempt problem behaviors and help students become happier, more empathetic, more socially skilled adults. "The most successful SEL programs are those that address the needs of the whole child," says CASEL executive director Roger Weissberg, professor of psychology and education at the University of Illinois at Chicago.

"These prosocial behaviors serve as quite powerful academic enablers for many of the students we work with."

Interest in social and emotional skills has been growing lately, as teachers look for new strategies to deal with problem behaviors. In his 1995 best-seller *Emotional Intelligence*, Daniel Goleman argues, based on research in psychology, neurobiology, and other fields, that knowing how to manage one's emotions is at least as important for success in life as intellect. He also writes that SEL programs play an integral role in helping prepare children for all of the challenges they face now and will face in the future: "Beyond [the] educational advantages, the courses seem to help children better fulfill their roles in life, becoming better friends, students, sons and daughters—and in the future [they] are more likely to be better husbands and wives, workers and bosses, parents, and citizens."

New Haven's SEL Program

The specific reasons why educators adopt social and emotional learning programs differ, but many have two primary goals that they believe are closely linked: improved social and emotional skills, and better academic performance. Karol DeFalco, a facilitator for social development in the New Haven (CT) Public Schools, says poor academic achievement, especially among high-risk segments of the school population, prompted that system's decision to begin developing an SEL program a decade ago. DeFalco and her colleagues also were deeply concerned about the district's high rates of teen parenting, dropouts, and illegal drug use, all of which appeared to be closely linked to low academic achievement.

About 75 people representing virtually all constituencies of the New Haven school community—parents, teachers, administrators, business owners, clergy, and others—met and discussed ways to improve the achievement of underperforming students. The group concluded, based on their observations, that many of these students shared common social and emotional characteristics, including lack of impulse control, poor problem-solving skills, low self-esteem, difficulty in accepting individual differences, and poor communication skills. "We realized we had to do something about students' social and emotional development if they were going to have any hope of improving academically," DeFalco says.

Working with Weissberg, then a psychology professor at Yale University, district staff members developed a program in social and emotional learning that has grown into the New Haven Social Development Project, a wide-ranging K-12 curriculum in which all 20,000 students in the city's public schools participate. The objectives of the curriculum are to improve students' skills in three areas: self-monitoring, problem-solving and decisionmaking, and communication. Within these areas, the program focuses on such issues as self-awareness and anger management at the elementary level; peer-pressure resistance in middle school; and transition-making, violence prevention, and the understanding and acceptance of differences at the high school level.

In an effort to gauge the program's effectiveness, the project's staff developed an evaluation instrument in 1992; they now survey all of the city's 6th-, 8th-, and 10-graders (about 2,500 students) every two years. Their results have been encouraging. While the study does not establish definite links between SEL and academic achievement, statistics for several academically related indicators have shown improvement. According to their surveys, from 1992 to 1996 (the last year for which data are available), the dropout rate, students' attitudes about school, feelings of school safety, retention rates, and the percentage of students who plan to go on to college have all improved. Students also have a greater sense that there is respect for diversity within the schools. Statistics about alcohol and drug use have essentially remained steady. "Kids are fighting less, they report they are less sexually active, they feel happier and safer at school, and more want to go on to college. There's definitely reason for optimism," DeFalco says.

Results Encouraging but Limited

Several recent larger studies of the effects of SEL programs also show promising results, but their findings require some qualification. Stephen N. Elliott, professor of educational psychology at the University of Wisconsin, conducted a study of 301 Responsive Classroom and control group students in the Springfield, MA, public schools. Using three social skills measurement instruments and the Iowa Test of Basic Skills (ITBS) to measure academic achievement, Elliott found that over the 1996-97 school year:

- 34 percent of students in Responsive Classroom classes showed reliable improvement in social skills, while only 20 percent of students in the control group did;
- 30 percent of students in Responsive Classroom classes showed reliable improvement in problem behaviors, while only 10 percent of students in the control group did;
- ITBS scores rose 22 percent for the Responsive Classroom students and 3 percent for the control group students;
- there is a correlation (determined by regression analysis) between social skills improvement and improved ITBS scores.

Elliott, who has also studied Responsive Classroom programs in other settings, says he sees the changes effected

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by the program occurring in several "waves": "In the first wave of change, problem behaviors decrease. This creates the opportunity for more prosocial behaviors to replace some of the problem behaviors. And these prosocial behaviors serve as quite powerful academic enablers for a good 30-40 percent of the students we work with."

In another study of SEL's effectiveness, Metis Associates, a New York research firm, is examining the Resolving Conflict Creatively Program (RCCP) in the Atlanta public schools. A project of Educators for Social Responsibility (based in Cambridge, MA), RCCP is geared to developing students' social skills and their understanding about alternatives to violence. As RCCP director Linda Lantieri explains, the project focuses on "problem-solving and communication skills used in deescalating conflict." These skills include active listening, expression of feelings, perspective-taking, negotiation, and encountering bias.

Data covering two school years (fall 1995 to spring 1997) show a 17 percent decline in the RCCP high school's out-of-school suspension rate, compared to a 6 percent increase citywide, and a dropout rate that is 1.7 percentage points lower than the city average. Qualitative data from the study show improved self-esteem, more willingness to help others, and greater responsibility for handling conflicts among the RCCP students. Metis Associates senior vice president Stan Schneider says the findings are especially encouraging, given that the RCCP high school had previously been one of the lowest performing in the city. In what is perhaps the study's most impressive statistic, out-of-school suspensions in the RCCP middle school (West Fulton) decreased by 10 percent, compared to an 86 percent increase citywide.

West Fulton Principal Robert Bell credits RCCP and several other new initiatives with improving the suspension statistics. The school has added peer mediation and Saturday detention as deterrents to potentially suspendable offenses. He adds that RCCP training has also helped teachers manage classroom behavior better, reducing the need for discipline referrals.

Carolyn Lee Hart, liaison specialist in the Atlanta public schools' department of professional development, who has worked closely on the RCCP implementation, says, "I think the program has had a great impact because the schools that we selected [for RCCP participation] were in a difficult area for us, an area where we've had low test scores. The environment of those schools has changed so. It's just an uplifting environment now. Teachers have made changes in what they do, and students respond."

The research does little to answer the question of whether the benefits of learning stay with students.

One thing SEL advocates are quick to point out is that neither the need for SEL nor its benefits are limited to urban schools and students. The Oakland, CA-based Developmental Studies Center recently released findings of three evaluation studies, representing urban, suburban, and rural schools participating in its Child Development Project (CDP). Geared to fostering "caring communities" in schools, key components of CDP include the integration of social and ethical content into literature-based reading and language arts programs; specific lesson formats for collaborative classroom learning; "developmental discipline" that emphasizes problem-solving approaches instead of punishments and rewards; and a range of family involvement efforts.

Students in CDP schools, representing eight districts in four different states, were found to have improved prosocial attitudes and behaviors and a greater sense of their schools as communities. Instead of geography, the key factor for success, according to Developmental Studies Center president Eric Schaps, was whether most teachers in a school made "meaningful movement toward implementation" of the program.

Weakness in the Research

One weakness in the overall body of SEL research is that many evaluations (including those of Responsive Classroom, RCCP, and the Child Development Project previously mentioned) have been commissioned or conducted by the organizations whose programs are under evaluation. SEL advocates agree that more independent research is needed. Second, the research does little to answer the question of whether the benefits of social and emotional learning stay with students beyond their experiences in a classroom or school with an SEL component. In other words, do SEL students really grow up to be better adjusted, more caring adults?

Weissberg notes that evaluating the long-term effects of social and emotional learning programs is complicated by a variety of factors. "Doing an accurate longitudinal study with this work would be extremely costly and complex," he says. "How do you evaluate a 12- or 13-year multicomponent social and emotional learning program? Basically, any program that can be evaluated scientifically is probably one that is less ambitious in scope."

Instead of checking outcome data, Weissberg suggests that educators who are considering an SEL curriculum look at what goes into each program: "How are the skills taught? How clearly designed are the lesson plans? How are people trained to implement the programs? Is there follow-up training to support skill applications? These are the kinds of questions to ask."

For Further Information

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Consortium for the Advancement of Social and Emotional Learning (CASEL). The CASEL website lists descriptions, target grade levels, and contact information for 23 social and emotional learning programs. Beginning next year, CASEL will also include its evaluations of some existing SEL programs on the site: http://www.cfapress.org/casel/casel.html.

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Building Collaborative Relationships: Educational Research in Schools

By Eliane B. Rubinstein-Avila and Carola Suarez-Orozco

The cultural gap between institutions of higher education and schools is not a new phenomenon. Educational researchers—sometimes armed with much theory and little practice—are viewed by teachers as being out of touch with the challenging realities of teaching students in today's complex society.

As researchers, we have often been in the position of asking teachers to participate in studies. Many teachers have been pleased to have the opportunity to participate in research projects. Others have been skeptical about whether, ultimately, research findings will justify the disruption of their daily routines or the additional work involved. Some teachers ask, "Why do we need more research? What we need are more books and manipulatives, not more research"—although it is important to note that funding for research does not compete with funding for books and classroom materials. Or "What will come out of all this anyway?" And, finally, "What's in it for us?"

For Discussion

Apprehension is a natural consequence of a lack of information regarding research. In order to build effective collaborative relationships, teachers must ask and researchers must answer questions about study logistics and goals. Based on our experiences, we offer the following topics that administrators and teachers should discuss with researchers before deciding whether to participate.

The most important issue is whether the proposed research project has the potential to provide information that could lead to improved educational opportunities for students. Participating teachers should know what researchers are trying to discover and who may benefit from the findings. On a more pragmatic level, the question of what impact the proposed research project will have on the day-to-day quality of life of teachers and students is a key consideration. It is important for the teacher to ask the researcher to be specific about how much student and/or teacher time will be required for the project.

The amount of time participants need to commit to a project can vary greatly. A teacher may be asked simply to identify students who meet the study's inclusion criteria, a task that might take as little as half an hour. On the other hand, an intervention project may require a teacher to teach a new curriculum two mornings a week for two years.

Other key questions to ask researchers are: Will classroom observations be shared with district administrators? How will the confidentiality of teachers, students, parents, and schools be protected? How will the results be presented and where will they be published? Will the analysis of the data require teacher input? If so, how?

If these questions are not answered to teachers' satisfaction, they should feel justified in turning down the research project. If, on the other hand, concerns are met with thoughtful responses, teachers should feel confident in agreeing to participate in a project. Of course, issues may arise during the course of the study. Researchers should make themselves accessible to the participants in case concerns arise. A timeline and progress reports can also help sustain smooth collaborative relationships.

In some of the best school-university collaborations, researchers have worked reciprocally with participating classrooms, lending their expertise in exchange for data. These exchanges evolve naturally out of the relationships that develop during the course of a project. Below are some examples:

- Some university researchers volunteered to help as teacher's helpers either before, during, or after the data collection period. They team-taught, co-planned a unit, helped review students' work, and answered journals, among other things. Numerous teachers have told us that a researchers' systematic presence in the classroom gave students extra attention. This type of collaboration can enhance the quality of data collected, as well as the authenticity in the analysis of that data.
- A doctoral student offered to conduct a few technology workshops for teachers and aides. In return, the great majority of school personnel agreed to be interviewed three times during the school year and to meet once after each interview to discuss their experiences.
- A veteran teacher asked a researcher to help formulate a mini-study for a self-evaluation that her district was piloting. In exchange for numerous classroom observations, the researcher met with the teacher to lend her expertise on data collection and analysis for the self-evaluation. The researcher also helped make a video documenting the process the teachers used to make the self-evaluation.
- A graduate student conducting a small qualitative study for a methods course solicited ideas from teachers to come up with a question that was relevant to them. Two team teachers asked to be "shadowed" in their planning and teaching efforts in order to explore the nature of their collaboration. The result was an intimate description of the process, providing the teachers with a systematic perspective on their team-teaching for a semester. The insights they gleaned from this experience, they later told her, fostered better communication between the teachers, which ultimately enhanced their partnership, job satisfaction, and, very likely their students' learning.

While there are many wrinkles to be ironed out, teachers and researchers, armed with more knowledge about the research process, can arrange for reciprocal exchanges that will potentially enrich the learning and teaching experiences for all involved. Together, researchers and practitioners may achieve the stimulating marriage of theory with practice often lacking both in universities and in schools.

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Carola Suarez-Orozco is a lecturer at the Harvard Graduate School of Education. She is also co-director of the Harvard Immigration Project.

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A Parent's Influence Is Peerless

BY JEROME KAGAN

Editor's Note: A new book by Judith Rich Harris, The Nurture Assumption: Why Children Turn Out the Way They Do, *argues that peers have more influence than we think and parents have less. For the sake of discussion, we asked Jerome Kagan, a psychologist at Harvard University, to share his views about the importance of parents in their children's lives.*

That parents exert a minor influence and peers a major influence on a child's development—the chief claim in *The Nurture Assumption*—ignores some important facts, ones that are inconsistent with this book's conclusions. Indeed, there is ample evidence that, for better or worse, parents do shape their children.

Consider, for example, that the best predictor of a child's verbal talent is the frequency with which the parents talk and read to the child. A verbally talented child is more likely to get better grades in school, and therefore is a little more likely to attend a better college. That, in turn, makes it more likely that in adulthood he or she will land a better job.

INSIGHTS

Moreover, a parent's education (whether they are, for example, a high school dropout or a college graduate) can predict how their child will fare in the world. Parental educational attainment, which is related to their child-rearing practices, predicts, among other things, the probability of aggressive behavior and the likelihood of psychiatric problems when these children become adults.

Although parents clearly do matter, parental influences are subtle, complex, and, at the moment, very difficult to measure objectively. One of the most important of these processes has been called identification. Children assume that some of the qualities of their parents belong to them and, as a result, they experience the emotions that would follow that belief.

A girl with a competent, well-liked mother feels pride because she is identified with a parent who has desirable characteristics, and she will carry that pride through adolescence. By contrast, the child with a parent who is incompetent, impulsive, drinks too much, and is not liked by neighbors is likely to carry shame into adolescence and adulthood. The childhood shame that Frank McCourt, author of the Pulitzer Prize-winning memoir "Angela's Ashes," felt when he found his father drunk in a local bar is one example of the consequences of identification.

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Unfortunately, a great deal of the evidence cited to support the idea that parents don't matter much is based on questionnaires in which people are asked to describe themselves. They respond to such questions as: "Do you like parties?" "Are you afraid to take risks?" "Do you prefer to be alone or with friends?" and "Do you worry a lot?" But this source of evidence is too crude to capture a child's pattern of identification with parents.

Indeed, such questionnaire evidence yields answers that have a special quality. For example, when parental questionnaires are used, the estimated degree of genetic influence on the child's shyness increases as the child grows older. But when the evidence on shyness comes from actual observation of the child at home or in the laboratory, the estimate of genetic influence decreases. The direct observations are probably more accurate reflections of a child's personality than the parents' descriptions.

Put simply, reliance on questionnaires as a strategy to evaluate parental influence is a little like trying to understand the galaxies without the advantages of a telescope. For this reason, the claim that parents are relatively unimportant is premature.

It is useful to recall that at the turn of the century a majority of Americans believed that the poor school performance and uncivil behavior of children of European immigrants was probably due to genes. Careful scientific work during the succeeding decades corrected that serious misjudgment. In fact, many of those children became some of America's leading citizens during the first half of this century.

So why has *The Nurture Assumption* received so much publicity? One reason may be that many American parents feel tense, worried, and occasionally guilty about how their children turn out. Any book that reduced some of that concern would be greeted with joy and might be followed by a temporary muting of the burden of responsibility for the child's growth.

But the evidence of parents' importance remains woven throughout everyday life. The child who is told that he cannot have dessert because he is too loud or impetuous at dinner is, most of the time, better behaved the next day. The child who is consistently encouraged by a parent to overcome a fear of swimming in the ocean will take more risks the next summer.

Telling parents that they have little influence on their children, in light of the scientific evidence and their daily encounters with their children, is a little like declaring on a foggy September morning that all the trees have disappeared because you cannot see them.

Jerome Kagan is Starch Professor of Psychology at Harvard University. His research during the last 15 years has been on temperamental biases in children, especially fearful and fearless profiles.